ORDER NO. HAD8706168C8

Service Manual

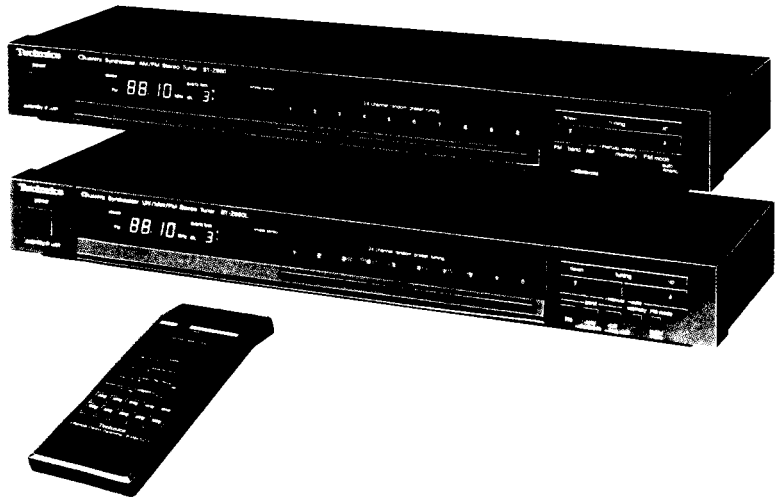
Tuner

QUARTZ Synthesizer AM/FM Stereo Tuner (ST-Z960)

ST-Z960

QUARTZ Synthesizer LW/MW/FM Stereo Tuner (ST-Z960L)

ST-Z960L



(ST-Z960)

(ST-Z960L)

Color

(K)...Black Type

Area

color	areas
(K)	(EX) .....Continental Europe. (ST-Z960)
(K)	(EK) .....United Kingdom. (ST-Z960L)
(K)	(EB) .....Belgium. (ST-Z960L)
(K)	(EH) .....Holland. (ST-Z960)
(K)	(EF) .....France. (ST-Z960L)
(K)	(EW) .....Switzerland. (ST-Z960L)
(K)	(XA) .....Asia, Oceania, Latin America, Middle Near East and Africa. (ST-Z960)
(K)	(XL).....Australia. (ST-Z960)
(K)	(EG).....F.R Germany. (ST-Z960)
(K)	(Ei) .....Italy. (ST-Z960)

SPECIFICATIONS

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.00MHz (50kHz-steps)
Sensitivity	1.5μV (IHF, usable)
S/N 30dB	1.3μV (75Ω)
S/N 26dB	1.2μV (75Ω)
S/N 20dB	0.9μV (75Ω)
IHF 46dB stereo quieting sensitivity	28μV/75Ω
Total harmonic distortion	
MONO	0.15%
STEREO	0.3%
S/N	
MONO	70dB (78dB, IHF)
STEREO	65dB (70dB, IHF)
Frequency response	20Hz~15kHz, +0.5dB~−1.5dB
Alternate channel selectivity	
±400kHz	65dB
Capture ratio	1.0dB
Image rejection at 98MHz	40dB
IF rejection at 98MHz	70dB
Spurious response rejection at 98MHz	70dB
AM suppression	55dB
Stereo separation	
1kHz	40dB
10kHz	30dB
Carrier leak	
19kHz	−30dB (−35dB, IHF)
38kHz	−45dB (−50dB, IHF)
Channel balance (250Hz~6,300Hz)	±1.5dB
Limiting point	1.2μV
Bandwidth	
IF amplifier	180kHz
FM demodulator	1000kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION ST-Z960

Frequency range	522kHz~1611kHz (9kHz-steps) 530kHz~1620kHz (10kHz-steps)
Sensitivity (S/N 20dB)	20μV, 300μV/m
Selectivity at 999kHz (±9kHz)	55dB
Image rejection at 999kHz	40dB
IF rejection at 999kHz	60dB

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ AM TUNER SECTION ST-Z960L

Frequency range	
MW	522kHz~1611kHz (9kHz-steps)
	530kHz~1620kHz (10kHz-steps)
LW	155kHz~353kHz (9kHz-steps)
	153kHz~351kHz (−2kHz shift)
Sensitivity (S/N 20dB)	
MW	20μV, 300μV/m
LW	50μV
Selectivity (±9kHz)	
MW (at 999kHz)	55dB
LW (at 254kHz)	55dB
Image rejection	
MW (at 999kHz)	40dB
LW (at 254kHz)	40dB
IF rejection	
MW (at 999kHz)	60dB
LW (at 254kHz)	60dB

■ GENERAL

Output voltage	0.3V (0.6V IHF)
Power consumption	9W
Power supply	
For continental Europe	AC 50Hz/60Hz, 220V
For United Kingdom and Australia	AC 50Hz/60Hz, 240V
For others	AC 50Hz/60Hz, 110V/127V/220V/240V
Dimensions (W × H × D)	430 × 53 × 150mm
	(16-15/16" × 2-3/32" × 5-28/32")
Weight	1.5kg
	(3.3lb.)

Note:

1. Total harmonic distortion is measured by the digital spectrum analyzer (H.P.3045 system).
2. Specifications are subject to change without notice. Weight and dimensions shown are approximate.

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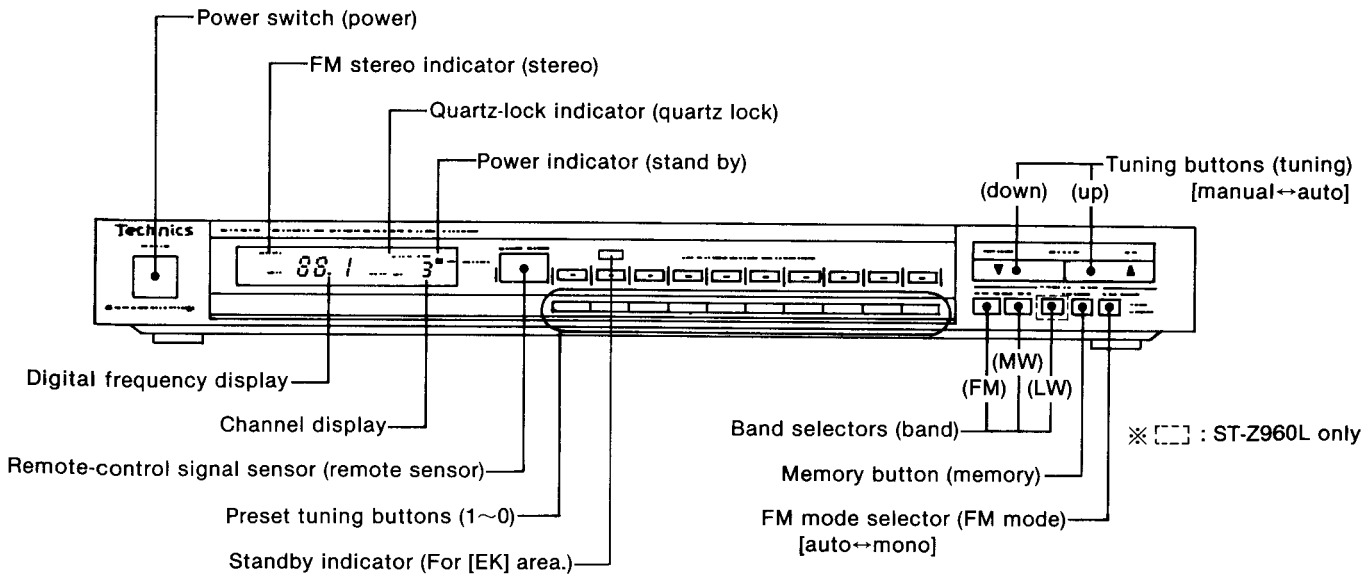
■ LOCATION OF CONTROLS

• Front panel



D

Tuner

DEUTSCH

Verwenden Sie bitte diese Broschüre Zusammen mit der Service-Anieitung für das Modell Nr. ST-Z960/ Z960L

■ MESSUNGEN UND JUSTIERUNGEN

A.M./M.F. (ST-Z960) LW/MW/M.F. (ST-Z960L)

Einstellungen der Bedienelemente und zu verwendende Geräte.

- MW und UKW Meßsender (MW und UKW Nebsender)
- Stereo-Modulator
- Verzerrungs-Analystator
- Elektronische Wechselstrom-und Gleichstrom-Voltmeter(EVM)
- Keramischer Kondensator(200pF)
- Oszilloskop
- Frequenzzähler
- Drosselspule(100μH)
- Widerstand(100KΩ)

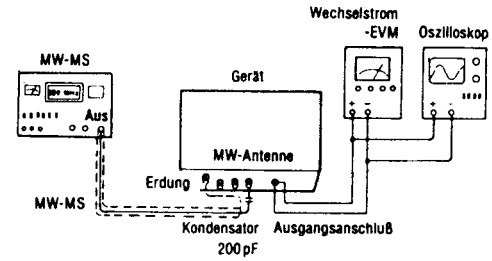
Anmerkung: Für **T201** (AM (MW) ZFT), **L204** (AM (MW)-OSZ, -Spule), **L205** (LW-Antennenspule), **L101** (L.P.F.) und **L301, L302** (L.P.F.), werdeven justiert Ersatzteil geliefert. Dien Kern dieses Teils daher nicht drehen.

AM(MW)-HF-JUSTIERUNG

1.Der Testaufbau ist in der Abbildung gezeigt.
2.Stellen Sie die Einheit auf **"AM(MW)"** Betrieb.
3.Radio und Signalgenerator auf **612kHz** einstellen.
4. **L205** und **L203** auf maximale Ausgangsleistung adgleichen.
5.Radio und Signalgenerator auf **1503kHz** einstellen.
6. **CT202** und **CT201** auf maximale Ausgangsleistung abgleichen.
7.Die Schritte 3 ~ 6 wiederholen.

Anmerkung:
Der Antenneneingang-Signalpegel muß so niedrig wie möglich und frei von automatischer werstärkungsregelung (AGC) sein.

ZUSTAND DES MW-MESSENDERS
Modulation 30%
Modulationsfrequenz 400Hz

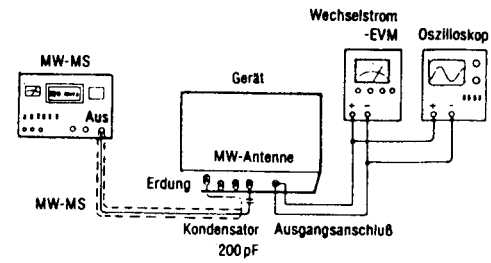


LW-HF-JUSTIERUNG (Nur ST-Z960L)

1.Der Testaufbau ist in der Abbildung gezeigt.
2.Stellen Sie die Einheit auf **"LW"** Betrieb.
3.Die Radiofrequenzanzeige und den Messender auf **155kHz** einstellen.
4. **L206** auf maximale Ausgangsleistung abgleichen.
5.Die Radiofrequenzanzeige und den Messender auf **353kHz** einstellen.
6. **CT202** auf maximale Ausgangsleistung abgleichen.
7.Die Schritte 3 ~ 6 wiederholen.

Anmerkung:
Der Antenneneingang-Signalpegel muß so niedrig wie möglich und frei von automatischer werstärkungsregelung (AGC) sein.

ZUSTAND DES MW-MESSENDERS
Modulation 30%
Modulationsfrequenz 400Hz



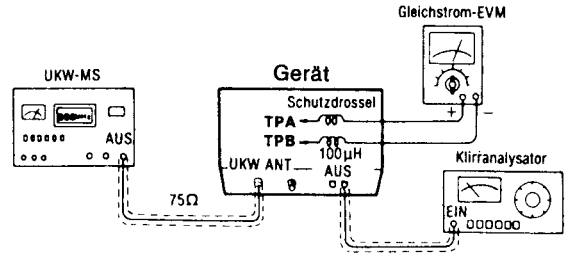
D

UKW-MONO-VERZERRUNGS-JUSTIERUNG

1.Der Testaufbau ist in der Abbildung gezeigt.
2.Stellen Sie die Einheit auf **"FM(UKW)"** Betrieb.
3.Die Radiofrequenzanzeige und den Messender auf **100.10MHz** einstellen.
4.Den Kern von **T101** so justieren, daß die im Signalzustand gemessene Spannung **0mV (0±10mV)** im 150mV-Bereich beträgt.
5.**T102** so justieren, daß der Verzerrungsfaktor des linken Kanals minimal wird.
6.Schritte 4 und 5 einige Male wiederholen.
7.Versichern Sie sich, daß die Verzerrungsfaktoren von Kanal L und Kanal R annähernd gleich sind und auf ein Minimum gehalten sind.

Anmerkung:
Für die Justierung ist ein Schraubendreher aus Kunststoff zu verwenden.

ZUSTAND DES UKW-MESSENDERS
Modulation 100%
Modulationsfrequenz 400Hz
Ausgangspegel 66dB



TPA=TP101, TPB=TP102

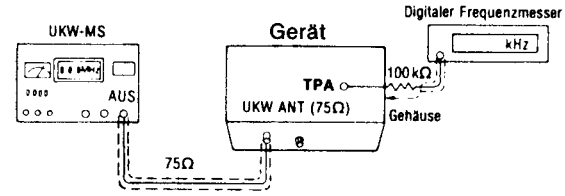
MPX-SGO-JUSTIERUNG

1.Der Testaufbau ist in der Abbildung gezeigt.
2.Den UKW-Bertriebsart-Wahlshalter in die **"on/auto"** Position stellen.
3.Radio und Meßsender auf **100.10MHz** einstellen.
4.**VR302** auf **19kHz** ± **30Hz** auf der Frequenzzähleranzeige justieren.

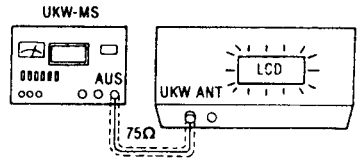
● VERWENDUNG EINES ALTERNATIVSYSTEMS

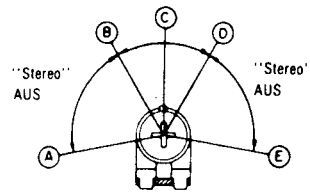
1.Stereosignal vom Meßsender eingeben oder eine Stereo-Sendung empfangen.
2.**VR302** justieren, bis die Stereo-Anzeige aufleuchtet. Den Arm von **VR302** mit Lack sichern, wie in der Abbildung gezeigt.

ZUSTAND DES UKW-MESSENDERS
Modulation 0%
Modulationsfrequenz 0
Ausgangspegel 66dB



TPA=TP301, Digitaler Frequenzmesser:19.00 kHz





Ⓐ－Ⓑ,
Ⓓ－Ⓔ..... "Stereo" AUS Stellung
Ⓑ－Ⓓ..... "Stereo" EIN Stellung (Anzeigebeleuchtung)
Ⓒ..... Einstellpunkt des pilotschaltkreis'

VR302

D

FRANÇAIS

Ceci est à utiliser conjointement avec manuel d'entretien du modèle No. **ST-Z960/ Z960L**

■ MEAURAGES ET REGLAGES

A.M./M.F. (ST-Z960)
LW/MW/M.F. (ST-Z960L)

Positionnements des commandes et équipement utilisé

- Générateur de signaux AM et FM (AM et FM-SG)
- Modulateur stéréophonique
- Analyseur de distorsion
- Oscilloscope
- Compteur de fréquence
- Bobine d'amortissement d'arrêt (100µH)
- Résistance (100kΩ)
- Condensateur céramique (200pF)
- Voltmètre électronique à C.A. et C.C. (EVM).

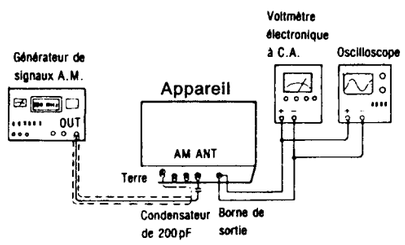
Nota: Pour **T201** (A.M.), F.I., **L204** (bobine oscil. de AM (MW), **L205** (bobine ANT LW), **L101** (L.P.F.) et **L301, L302** (L.P.F.), des éléments réglés sont fournis. Aussi, ne pas tourner les noyaux de ces pièces.

REGLAGE DE O.M.-H.F.

1.Le raccordement de l'équipement d'essai est montré sur l'illustration.
2.Régler l'appareil sur le mode **"AM(MW)"**.
3.Régler le cadran radio et le générateur de signaux sur **612kHz**.
4. Régler **L205** et **L203** pour une sortie maximale.
5.Régler le cadran radio et le générateur de signaux sur **1503kHz**.
6. Régler **CT202** et **CT201** pour une sortie maximale.
7.Répéter les étapes 3 ~ 6.

Nota: Le niveau d'entrée d'antenne doit être aussi bas que possible étant libéré de la commande automatique de gain.

CONDITION DU GENERATEUR
DE SIGNAUX AM
Modulation 30%
Modulationsfrequenz 400Hz

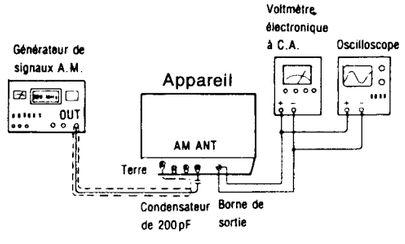


REGLAGE DE RE-LW (ST-Z960L seulement)

1.Le raccordement de l'équipement d'essai est montré sur l illustration.
2.Régler l'appareil sur le mode **"LW"**.
3.Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **612kHz.**
4. Régler **L206** pour une sortie maximale.
5.Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **353kHz.**
6. Régler **CT202** pour une sortie maximale.
7.Répéter les étapes 3 ~ 6.

Nota: Le niveau d entrée d'antenne doit étre aussi bas que possible étant libéré de la commande automatique de gain.

CONDITION DU GENERATEUR
DE SIGNAUX AM
Modulation 30%
Modulationsfrequenz 400Hz

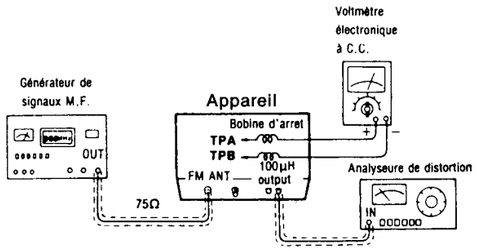


REGLAGE DE DISTORSION MONOPHONIQUE M.F.

1.Le raccordement de l'équipement d'essai est montré sur l'illustration.
2.Régler l'appareil sur le mode **"FM"**.
3.Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **100.10MHz**.
4.Régler le noyau de **T101** de telle sorte que la tension mesurée sur le mode de signaux soit de **0mV(0±10mV)** dans une plage de 150mV.
5.Ajuster **T102** de telle que le facteur de sistorsion du canal de gauche soit minimisé.
6.Répéter les étapes 4 et 5 quelques fois.
7.S'assurer que les facteurs de distorsion du canal de gauche et du canal de droite soient sensiblement les mêmes et au minimum.

Nota: Le tournevis de réglage utilisé devra ètre fait en résines.

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation 100%
Fréquenz de modulation 400Hz
Niveau de sortie.....66dB



TPA=TP101, TPB=TP102

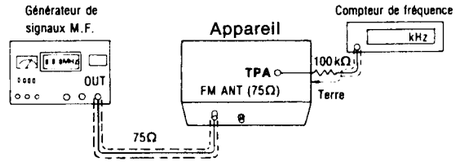
REGLAGE MULTIPLEX DE L'OSCILLATEUR COMMANDE PAR VARIATION DE TENSION

1.Le raccordement de l'équipement d'essai est montré sur la figure.
2.Régler l'appareil sur la position **"on/auto"**.
3.Régler le cadran radio et le générateur de signaux sur **100.10MHz**.
4.Ajuster **VR302** pour **19kHz ± 30Hz** sur le compteur de lecture de fréquences.

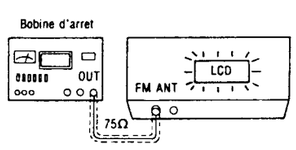
● EN UTILISANT UN SYSTEME ALTERNATIF

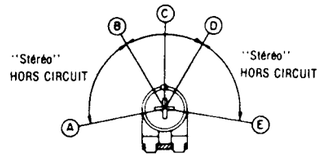
1.Applique un signal stéréo à partir du générateur ou recevoir une émission stéréo.
2.Ajuster **VR302** jusqu' à ce que l'indicateur stéréo s éclaire. Coller le bras de **VR302** comme il montré sur la figure.

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation 0%
Fréquenz de modulation 0
Niveau de sortie.....66dB



TPA=TP301,
Compteur de fréquence:19.00 kHz





VR302

Ⓐ−Ⓑ,
Ⓓ−Ⓔ..... Position de HORS CIRCUIT "Stereo".
Ⓑ−Ⓓ..... Position de MISE EN CIRCUIT "Stereo". (Eciairage de l'indicateur)
Ⓒ..... Point de réglage du circuit pilote.

D

ESPAÑOL

Sirvase utilizarse junto con manual de servicio para el model No. **ST-Z960/ Z960L**

■ MEDICIONES Y AJUSTES

AM/FM (ST-Z960) LW/MW/FM (ST-Z960L)

Posiciones de control y equipo usado.

- Generador de señales de AM y FM (AM y FM-SG)
- Voltimetro electrónico de CA y CC(EVM)
- Analizador de distorsiones
- Osciloscopio
- Frecuencimetro
- Frecuencimetro
- Bobina de choque(100μH)
- Resistor(100kΩ)
- Condensador cerámico(200pF)

Nota: Para **T201** (AM-IFT), **L204** (bobina de OSC. AM (MW)), **L205** (bobina antena LO), **L101** (L.P.F.) y **L301, L302** (L.P.F.) son suministradas piezas ajustadas. Por lo tanto, no gire los nücleos estas piezas.

AJUSTE DE AM(MW)-RF

1.La conexión del equipo de pruebas se muestra en la figura.
2.Poner la unidad en modalidad de **"AM"**.
3.Poner la presentación de la radio y el generador de señales en **612kHz**.
4. Ajustar **L205** y **L203** para salida máxima.
5.Poner la presentación de la radio y el generador de señales en **1503kHz**.
6. Ajustar **CT202** y **CT201** para salida máxima.
7.Repita los pasos 3. al 6.

Nota:
El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

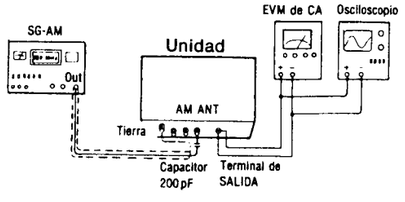
CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación 30%
Frecuencia de modulación 400Hz

AJUSTE DE LO-RF (Sólo ST-Z960L)

1.La conexión del equipo de pruebas se muestra en la figura.
2.Poner la unidad en modalidad de **"LW"**.
3.Poner la puesta de la presentación de radiofrecuenciay generador de señales a **155kHz**.
4. Ajustar **L206** para salida máxima.
5.Poner la puesta de la presentación de radiofrecuenciay generador de señales a **353kHz**.
6. Ajustar **CT202** para salida máxima.
7.Repitir los pasos 3. al 6.

Nota:
El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación 30%
Frecuencia de modulación 400Hz

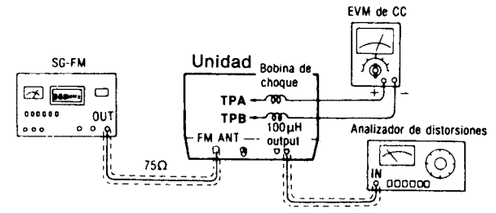


AJUSTE DE DISTORSION MONO FM

1.La conexión del equipo de pruebas se muestra en la figura.
2.Poner la unidad en modalidad de **"FM"**.
3.Poner la puesta de la presentación de radiofrecuencia y generador de señales a **100,10MHz.**
4.Ajustar el núcleo de **T101** de manera que el voltaje medido en modalidad de señal sea 0mV (0±10mV).
5.Ajustar **T102** de manera que el factor de distorsión de CH-I se minimice.
6.Repetir los pasos 4 y 5 algunas veces.
7.Asegurarse de que los factores de distorsión de CH-I y CH-D sean casi los mismos y los mínimos.

Nota:
El destornillador de ajuste usado debe estar hecho de resina.

CONDICION DE GENERADOR DE SEÑALES DE FM
Modulación 100%
Frecuencia de modulación 400Hz
Nivel de salida 66dB



TPA=TP101, TPB=TP102

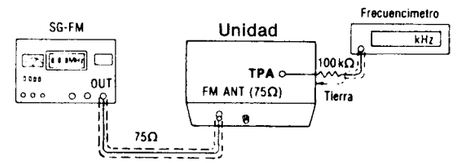
AJUSTE DE MPX VCO(OSCILADOR CONTROLADO POR VOLTAJE MPX)

1.La conexión del equipo de pruebas se muestra en la figura.
2.Poner la unidad en la posición de **"on/auto"**.
3.Poner la presentación de la radio y la puesta del generador de señales en **100.10MHz**.
4.Ajustar **VR302** para **19kHz±30Hz** en lectura de frecuencímetro.

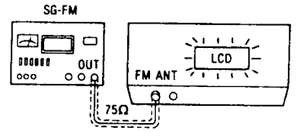
* USANDO SISTEMA ALTERNATIVO

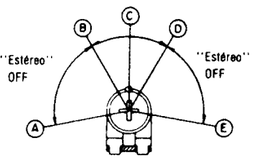
1.Aplicar señal estereofónica del generador o recibir la emisión estereofónica.
2.Ajustar **VR302** hasta que la presentacón de estéro se encienda. Fijar el brazo de **VR302** como se muestra en la figura.

CONDICION DE GENERADOR DE SEÑALES DE FM
Modulación 0%
Frecuencia de modulación 0
Nivel de salida 66dB



TPA=TP301, Frecuencimetro:19.00 kHz



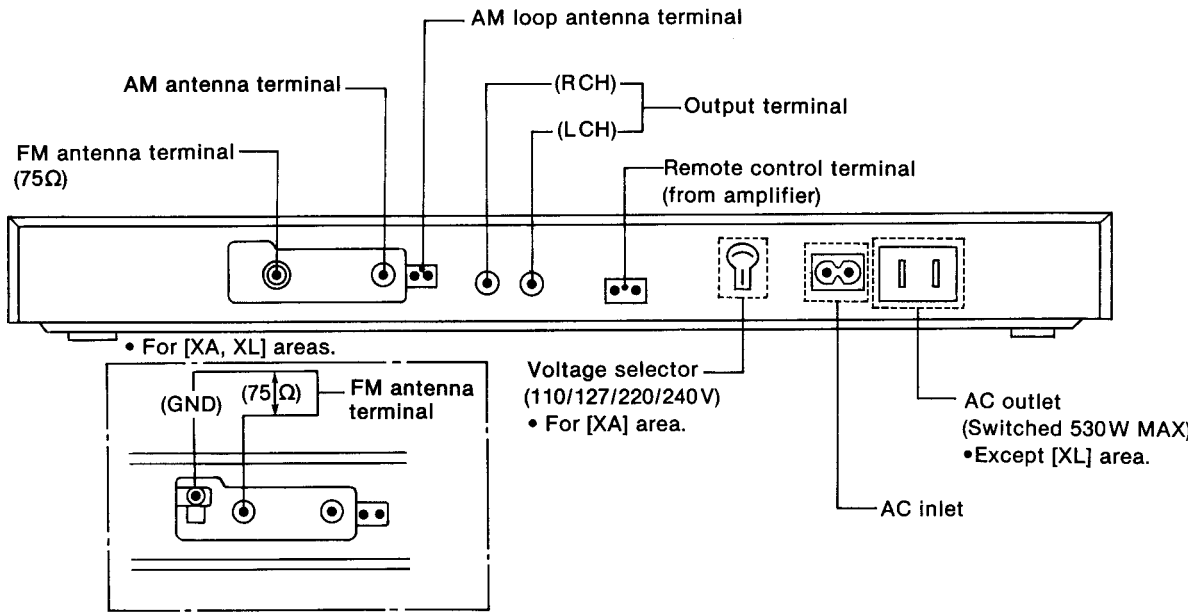


VR302

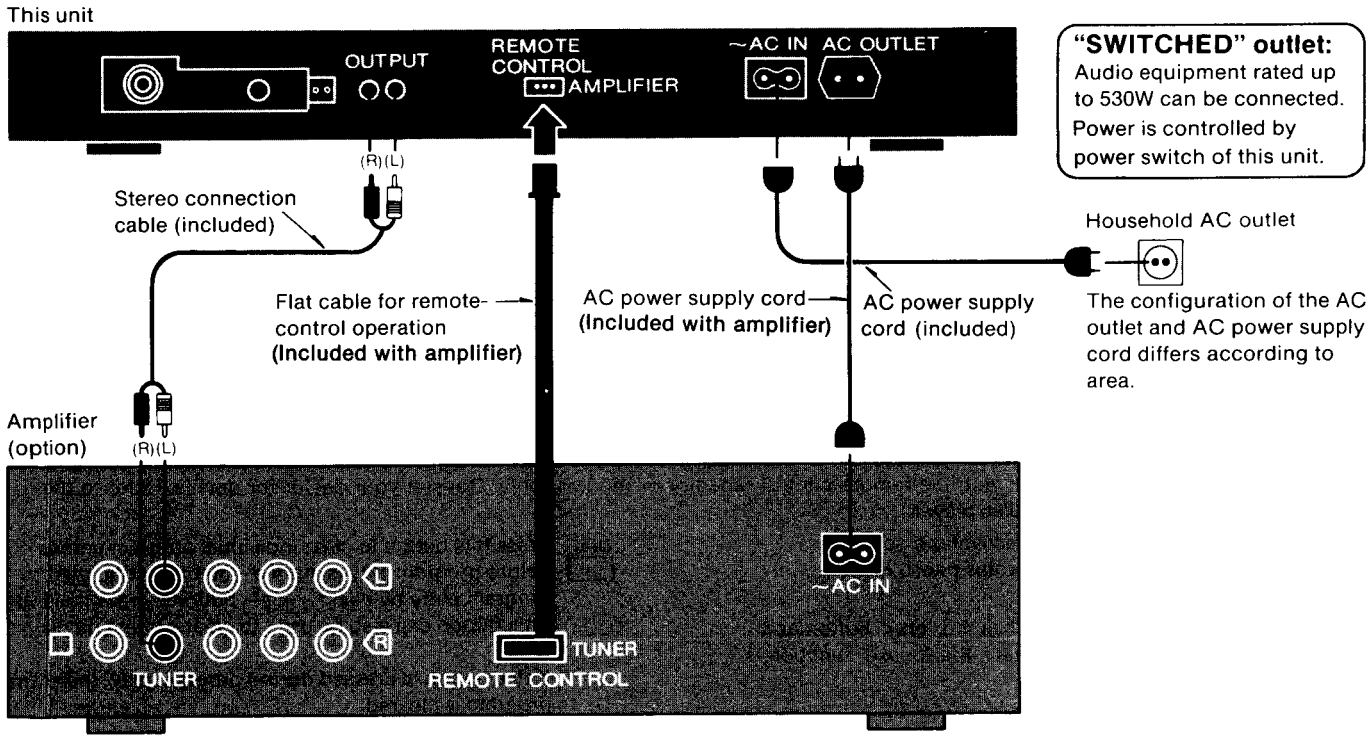
Ⓐ – Ⓑ,
Ⓓ – Ⓔ..... Pósición de "estéreo" OFF.
Ⓑ – Ⓓ..... Pósición de "estéreo" ON. (Indicador encendido)
Ⓒ..... Punto de ajuste de circuito piloto.

Printed in Japan
H870601650 YY/MT

•Rear panel



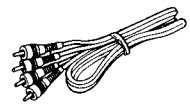
■ HOW TO CONNECTION



"SWITCHED" outlet:
Audio equipment rated up to 530W can be connected. Power is controlled by power switch of this unit.

■ ACCESSORIES

• Stereo connection cable 1
(SJPK2203-1)



D

■ REMOTE CONTROL TRANSMITTER (EUR64701/EUR64702)

For remote-control operation, be sure to connect the remote-control cords and/or flat cables, etc. included with each component correctly.

Tuner controls

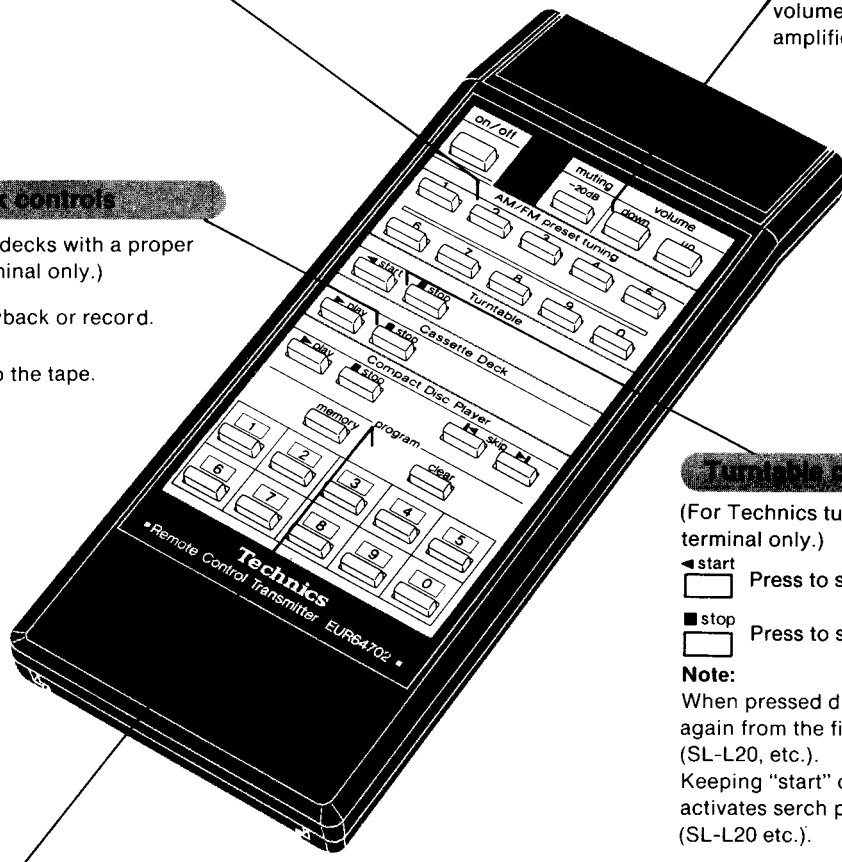
on/off — Press to switch the tuner ON and OFF when the power "standby ⏻, on" switch of the tuner is set to the "on" position. **(Except [XL] area.)**

1 ~ 0 — Press to select a preset "channel".

Amplifier controls

muting — Press this button to temporarily reduce the volume level. The volume level is attenuated by 20 dB. (approx. 1/10)

volume — Adjust the volume level. (The volume level is indicated by the volume/balance level indicator on the amplifier.)



Cassette deck controls

(For Technics tape decks with a proper remote-control terminal only.)

►play — Press to playback or record.

■stop — Press to stop the tape.

Turntable controls

(For Technics turntables with the remote-control terminal only.)

◄start — Press to start disc play.

■stop — Press to stop disc play.

Note:
When pressed during disc play, play will begin again from the first tune depending on the model (SL-L20, etc.).
Keeping "start" or "stop" button pressed activates serch play depending on the model (SL-L20 etc.).

Compact disc player controls

(For Technics compact disc player with the remote-control receptor or terminal only. Consult your dealer for details. Refer to the operating instructions of compact disc player.)

►play — Pressing this button once activates disc play. Pressing it again activates pause mode.

Note:
If the compact disc player has the "play" button and the "pause" button separately, the "pause" function is not operable.

■stop — Press to stop disc play.
(When pressed during programmed play, the programmed settings will be cancelled.)

I◄skip►I — Press to select the desired track.
(I◄: for backward ►I: for forward)

Note:
Keeping either "skip" button pressed during disc play activates search play.

memory — Press this button to enter displayed track numbers or preset edit play time into the memory.
The function of this button is exactly the same as the "memory/recall" button on the CD player.

clear — Press this button to clear individual program entries before program play is started. After selecting the program entry by using 1 ~ 0 buttons, press this button. This button can also be used to clear preset edit play time.
If this button is pressed during program play, the entire program is cleared.

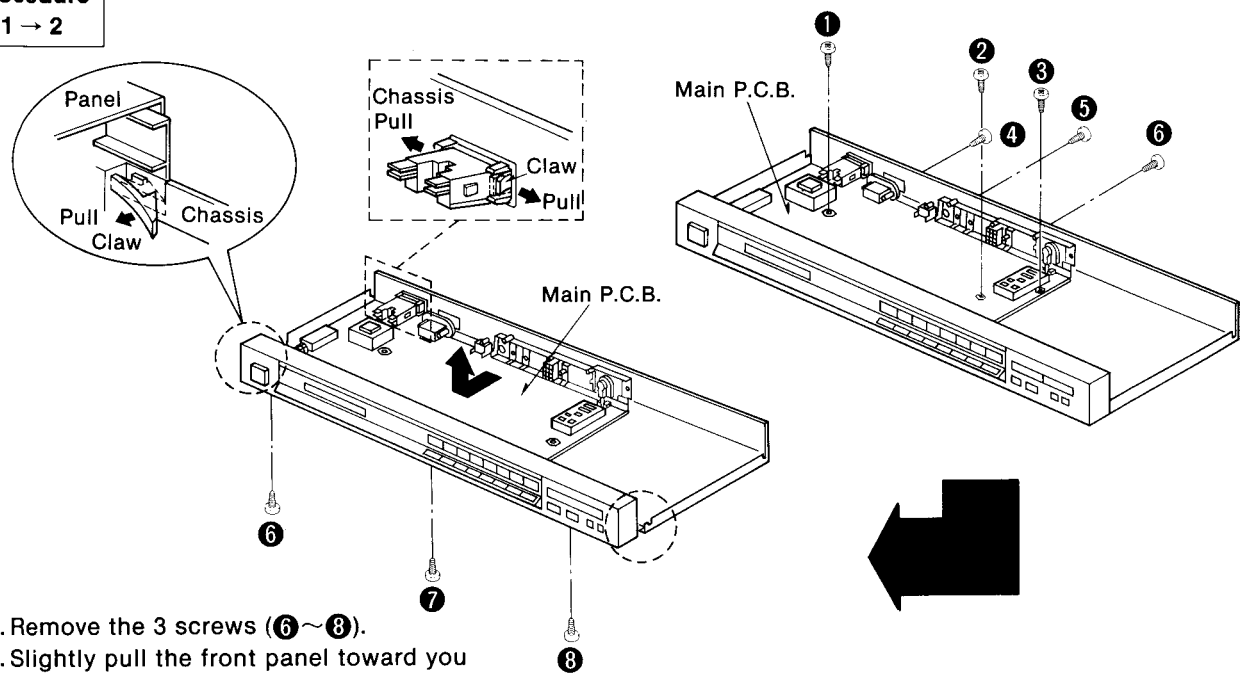
1 ~ 0 — These buttons can be used to select track number and preset-edit play time.
These buttons can also be used instead of the forward and backward skip buttons by entering the desired track number and then pressing the play button.

D

■ DISASSEMBLY INSTRUCTIONS

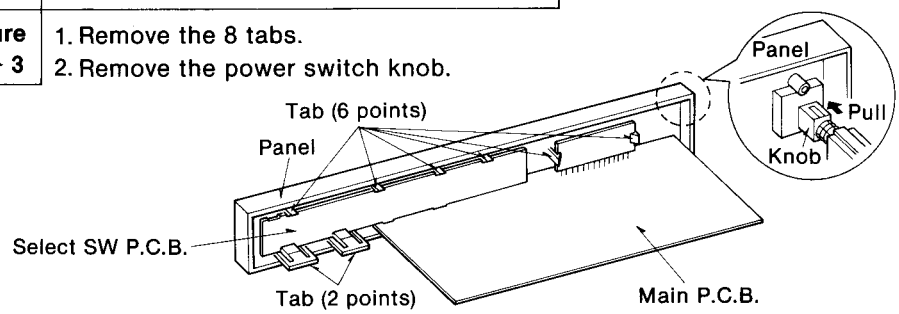
Ref. No. 1	How to remove the cabinet
Procedure 1	• Remove the 2 screws.

Ref. No. 2	How to remove the main P.C.B.
Procedure 1 → 2	1. Remove the 6 screws (❶~❻).

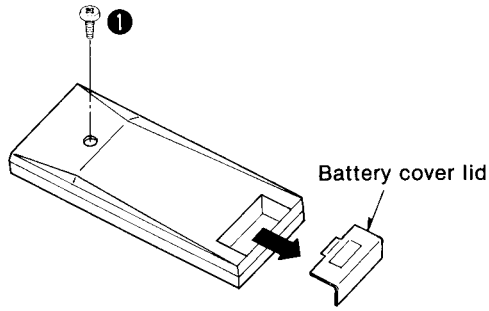


2. Remove the 3 screws (❻~❽).
3. Slightly pull the front panel toward you and remove the main P.C.B.

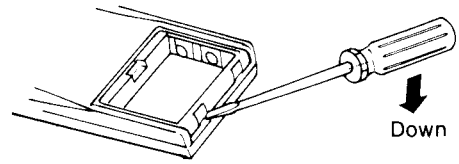
Ref. No. 3	How to remove the front panel
Procedure 1 → 2 → 3	1. Remove the 8 tabs. 2. Remove the power switch knob.



Ref. No. 4	How to remove the remote control
Procedure 4	1. Remove the battery cover lid. 2. Remove the one screw (❶).



3. Insert a screwdriver blade between the upper and lower covers inside the battery compartment and them slowly loosen the bottom cover.



D

■ MEASUREMENTS AND ADJUSTMENTS

■ AM/FM (ST-Z960)
LW/MW/FM (ST-Z960L)

Control positions and equipment used

- AM and FM signal generator(AM and FM-SG)
- Stereo modulator
- Distortion analyser
- Oscilloscope
- Frequency counter
- Choke coil (100μH)
- Resistor(100kΩ)
- Ceramic capacitor(200pF)
- AC and DC electronic voltmeter(EVM)

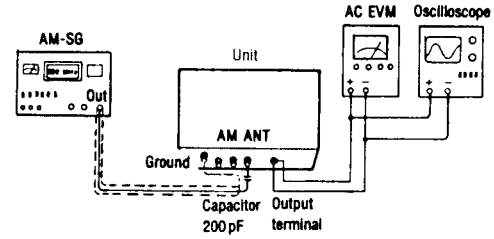
Note: For **T201** (AM (MW)-IFT), **L204** (AM (MW) OSC coil), **L205** (LW ANT coil), **L101** (L.P.F.) and **L301**, **L302** (L.P.F.), they are supplied as adjusted parts. So, do not turn the cores of the parts.

AM(MW)-RF ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"AM(MW)"** mode.
3.Set the radio and signal generator to **612kHz**.
4.Adjust **L205** and **L203** for maximum output.
5.Set the radio dial and signal generator to **1503kHz**.
6.Adjust **CT202** and **CT201** for maximum output.
7.Repeat steps 3 ~ 6.

Note: Antenna input level must be as low as possible being free from AGC.

AM SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation frequency 400Hz

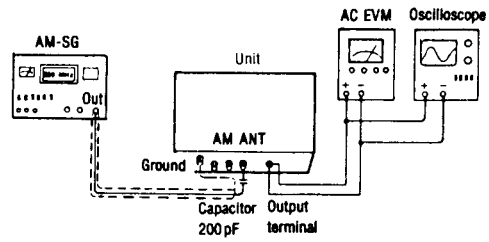


LW-RF ADJUSTMENT (ST-Z960L only)

1.Test equipment connection is shown in figure.
2.Set the unit to **"LW"** mode.
3.Set the radio frequency display and signal generator to **155kHz**.
4.Adjust **L206** for maximum output.
5.Set the radio frequency display and signal generator to **353kHz**.
6.Adjust **CT202** for maximum output.
7.Repeat steps 3 ~ 6.

Note: Antenna input level must be as low as possible being free from AGC.

AM SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation frequency 400Hz

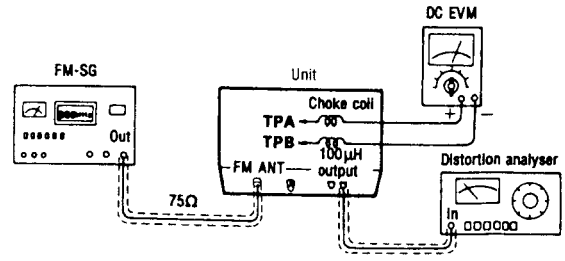


FM MONO DISTORTION ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"FM"** mode.
3.Set the radio frequency display and signal generator to **100.10MHz**.
4.Adjust the core of **T101** so that the voltage measured in signal mode is **0mV(0±10mV)** in 150mV range.
5.Adjust **T102** so that the distortion factor of L-CH is minimized.
6.Repeat steps 4 and 5.
7.Make sure that the distortion factors of L-CH and R-CH are nearly the same and minimum.

Note: The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency 400Hz
Output level 66dB



TPA=TP101, TPB=TP102

D

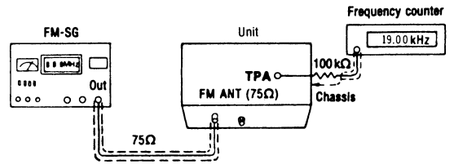
MPX VCO ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"on/auto"** position.
3.Set the radio dial and signal genarator to **100.10MHz**.
4.Adjust **VR302** for **19kHz±30Hz** on frequency counter reading.

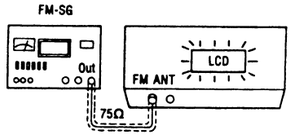
USING ALTERNATE SYSTEM

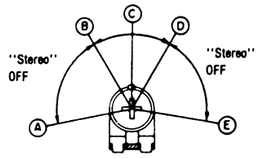
1.Apply stereo signal from generator or receive the stereo broadcast.
2.Adjust **VR302** until stereo indicator lights up. Fix the arm of **VR302** as shown in figure.

FM SIGNAL GENERATOR CONDITION
Modulation 0%
Modulation frequency 0
Output level.....66dB



TPA=TP301, Frequency counter:19.00 kHz

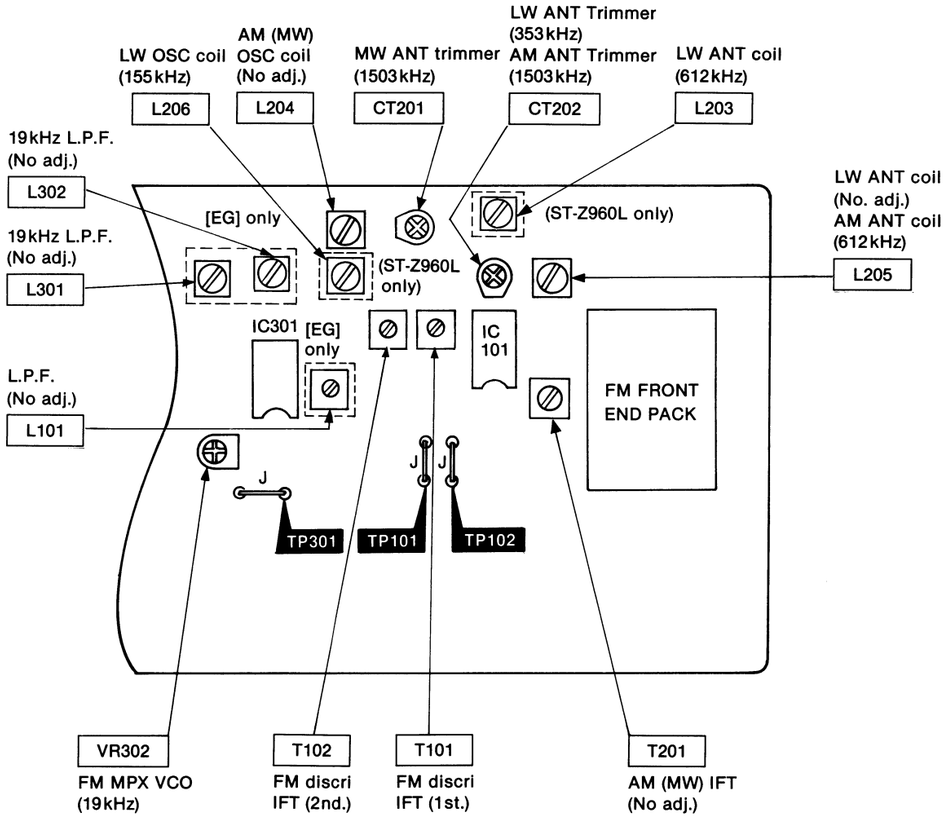




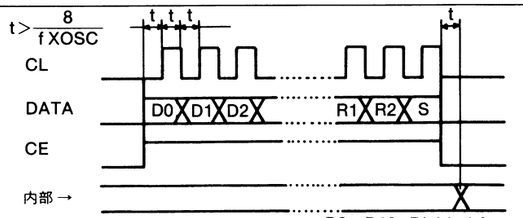
VR302

Ⓐ－Ⓑ,
Ⓓ－Ⓔ..... **"Stereo" OFF position**
Ⓑ－Ⓓ..... **"Stereo" ON position (Indicator lighting)**
Ⓒ..... **Adjust point of pilot circuit**

• Adjustment points



■ FUNCTION OF TERMINAL (IC901: LC6512A3377)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	INPUT	PB3	Computer drive terminal.
2	OUTPUT	DATA	Data output $t > \frac{8}{f_{XOSC}}$  f XOSC: Crystal OSC D0～D13: Divided frequency data R0～R2: Reference frequency data
3		CL	
4		CE	
5	—	PC3	Not used in this unit.
6	—	NC	Not used in this unit.
7	OUTPUT	PD0	Auto/mono changeover terminal. (auto → 0V, mono → 5V)
8	OUTPUT	PD1	Computer drive terminal.
9	—	PD2	Not used in this unit.
10		PD3	
11		PE0	
12 ～ 14 • 22 ～ 25	OUTPUT	PE1 ～ PE3 • PF0 ～ PF3	Digital signal terminal for display. Terminal for key return signal to external key matrix.
15	INPUT	$\overline{RES}$	Reset terminal.
16	—	TEST	Ground terminal.
17		V_{SS}	
18	—	NC	Not used in this unit.
19			
20	INPUT	OSC1	Connecting terminal for crystal oscillator.
21	OUTPUT	OSC2	
26 ～ 29 • 31 ～ 34	OUTPUT	PG0 ～ PG3 • PH0 ～ PH3	Segment signal terminal for display.
30	—	NC	Not used in this unit.
35	OUTPUT	P10	Control signal terminal for relay (RLY701).
36	OUTPUT	P11	Muting signal terminal. (Muting → High level)
37	INPUT	$\overline{HOLD}$	Terminal for power failure detection.
38	INPUT	$\overline{INT}$	Terminal for remote control cord.
39	INPUT	V_{DD}	Power supply terminal of device. Voltage of 5V is supplied during operation of device.
40	INPUT	PA0 ～ PA3	Terminal for key return signal to external key matrix. [KEY MATRIX]
41			
44			
45			
42 • 43	—	NC	Not used in this unit.
46	INPUT	PB0 ～ PB2	Stereo signal terminal.
47			SD signal terminal.
48			Tuner select terminal. (Ground connection)

Pin No.	45	44	41	40
14	CH4	CH3	CH2	CH1
22	CH8	CH7	CH6	CH5
23	—	—	CH0	CH9
24	–	LW	MW (AM)	FM
25	MODE	MEMORY	UP	DOWN

D

■ RESISTORS & CAPACITORS

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

Numbering System of Resistor

Example

ERD	25	F	J	102
Type	Wattage	Shape	Tolerance	Value
ERX	2	AN	J	471
Type	Wattage	Shape	Tolerance	Value 47x10¹ (ohm)

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity
ECEA	50	M		330
Type	Voltage	Peculiarity		Value (33x10⁰ microfarad)

Resistor Type	Wattage	Tolerance
ERD : Carbon ERG : Metal Oxide ERX : Metal Film ERQ : Fuse Type Metal ERD□ L : Carbon (chip) ERO□ K : Metal Film (chip) ERC : Solid	10 : 1/8W 12 : 1/2W 25 : 1/4W 1A : 1W 18 : 1/8W S2 : 1/4W S1 : 1/2W 2F : 1/4W 50 : 1/2W 2A : 2W	J : ±5% F : ±1% G : ±2% K : ±10%

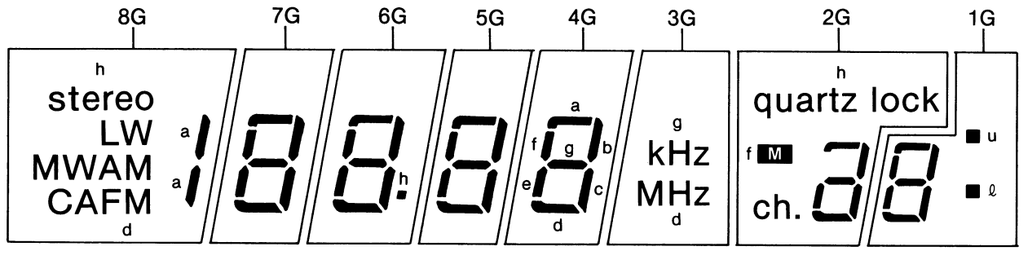
Capacitor Type	Voltage	Tolerance
ECE : Electrolytic ECCD : Ceramic ECKD : Ceramic ECQM : Polyester ECQP : Polyproylene ECG : Ceramic ECEA□□□N: Non Polar Electrolytic QCU□ : Ceramic (Chip Type) ECUX : Ceramic (Chip Type) ECF : Semiconductor EECW : Liquid electrolyte double layer capcitor	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1H : 50V 1V : 35V 50 : 50V 05 : 50V 2H : 500V 2A : 100V 1 : 100V KC: 400V AC KC: 125VAC (UL) 1J : 63V	C : ±0.25pF J : ±5% K : ±10% Z : +80% −20% P : +100% −0% M : ±20% D : ±0.5pF G : ±2%

Ref. No.	Part No.	Part Code
RESISTORS		
R101	ERDS2TJ151	001 152 2426 5
R101	ERG1ANJ151	001 151 0033 1
(EK)		
R102	ERDS2TJ122	001 152 2423 8
R104	ERDS2TJ824	001 152 2457 8
R105	ERDS2TJ122	001 152 2423 8
R106	ERDS2TJ824	001 152 2457 8
R107	ERDS2TJ271	001 152 2435 4
R108	ERDS2TJ102	001 152 2346 4
R109	ERDS2TJ471	001 152 2361 5
R110	ERDS2TJ822	001 152 2455 0
R111, R408 [EK]	ERDS2TJ222	001 152 2353 5
R112	ERDS2TJ224	001 152 2433 6
R113, R114	ERDS2TJ223	001 152 2432 7
R115	ERDS2TJ563	001 152 2446 1
R116	ERDS2TJ471	001 152 2361 5
R117	ERDS2TJ103	001 152 2347 3
R118	ERDS2TJ332	001 152 2357 1
R119	ERDS2TJ822	001 152 2455 0
R120	ERDS2TJ561	001 152 2364 2
R123	ERDS2TJ182	001 152 2352 6
R130	ERDS2TJ563	001 152 2446 1
R131, R201	ERDS2TJ103	001 152 2347 3
R202	ERDS2TJ822	001 152 2455 0
R203	ERDS2TJ102	001 152 2346 4
R204	ERDS2TJ104	001 152 2348 2
R205	ERDS2TJ102	001 152 2346 4
R206	ERDS2TJ182	001 152 2352 6
R207	ERDS2TJ223	001 152 2432 7
R209	ERDS2TJ122	001 152 2423 8
R210	ERDS2TJ223	001 152 2432 7
R211	ERDS2TJ122	001 152 2423 8
R213	ERDS2TJ3R9	001 152 2871 8
R214	ERDS2TJ824	001 152 2457 8
R215	ERDS2TJ102	001 152 2346 4
R301	ERDS2TJ333	001 152 2358 0
R302	ERDS2TJ3R9	001 152 2871 8
R305, R306	ERDS2TJ223	001 152 2432 7
R307	ERDS2TJ274	001 152 2437 2
R308	ERDS2TJ151	001 152 2426 5
R308	ERG1ANJ151	001 151 0033 1
(EK)		
R309	ERDS2TJ153	001 152 2351 7
R310	ERDS2TJ102	001 152 2346 4
R311, R312	ERDS2TJ332	001 152 2357 1
R313, R314	ERDS2TJ104	001 152 2348 2
R412	ERDS2TJ123	001 152 2424 7
R414	ERDS2TJ102	001 152 2346 4
R415	ERDS2TJ473	001 152 2363 3
R702	ERDS2TJ102	001 152 2346 4
R703	ERDS2TJ221	001 152 2431 8
R704	ERDS2TJ102	001 152 2346 4
(EW, EF, EB)		
R704	ERDS2TJ272	001 152 2354 4
(EK)		
R706	ERDS2TJ104	001 152 2348 2
R707	ERDS2TJ103	001 152 2347 3
R708	ERDS2TJ473	001 152 2363 3
R710	ERDS2TJ103	001 152 2347 3
R711	ERDS2TJ104	001 152 2348 2
R712, R713 ⚠	ERDS2TJ3R9	001 152 2871 8
R714	ERDS2TJ562	001 152 2445 2
R716, R717	ERDS2TJ101	001 152 2421 0
R718	ERDS2TJ183	001 152 2429 2
R725	ERDS2TJ103	001 152 2347 3
R902	ERDS2TJ562	001 152 2445 2
R903	ERDS2TJ103	001 152 2347 3
R904	ERDS2TJ561	001 152 2364 2
R905	ERDS2TJ102	001 152 2346 4
R906	ERDS2TJ153	001 152 2351 7
R907	ERDS2TJ332	001 152 2357 1
R908	ERDS2TJ102	001 152 2346 4
R910	ERDS2TJ101	001 152 2421 0
R911	ERDS2TJ103	001 152 2347 3
R912	ERDS2TJ684	001 152 2451 4
R913, R914	ERDS2TJ103	001 152 2347 3
R915, R402 [EK]	ERDS2TJ821	001 152 2454 1
R916	ERDS2TJ272	001 152 2354 4
R917	ERDS2TJ103	001 152 2347 3
R918	ERDS2TJ224	001 152 2433 6
R920	ERDS2TJ105	001 152 2422 9
R921	ERDS2TJ562	001 152 2445 2
R922	ERDS2TJ681	001 152 2449 8
R923	ERDS2TJ104	001 152 2348 2
R924	ERDS2TJ392	001 152 2439 0
R925	ERDS2TJ473	001 152 2363 3
R928	ERDS2TJ102	001 152 2346 4
R929	ERDS2TJ151	001 152 2426 5
R929	ERG1ANJ151	001 151 0033 1
(EK)		
R930, R931	ERDS2TJ104	001 152 2348 2
R932, R933	ERDS2TJ104	001 152 2348 2
R937	ERDS2TJ104	001 152 2348 2
R940, R941	ERDS2TJ473	001 152 2363 3
R942	ERDS2TJ103	001 152 2347 3
R945	ERDS2TJ474	001 152 2443 4
R946	ERDS2TJ101	001 152 2421 0
R947	ERDS2TJ223	001 152 2432 7
R950, R951	ERDS2TJ683	001 152 2450 5
R952, R953	ERDS2TJ683	001 152 2450 5
R954	ERDS2TJ683	001 152 2450 5
R960	ERDS2TJ103	001 152 2347 3
R961	ERDS2TJ273	001 152 2436 3
CAPACITORS		
C1	ECCC1H221K	001 103 0508 7
C2, C3	ECKD1H103PF	001 103 1449 7
C101, C103	ECKD1H103PF	001 103 1449 7
C105	ECCD1H470K	001 103 0627 1
C107	ECEA1HK010	001 120 0341 5
C108	ECEA1HKR47	001 120 0338 0
C109	ECKD1H103PF	001 103 1449 7
C110	ECEA1CKS100	001 120 2600 7
C111	ECCD1H101K	001 103 0341 2
C112, C113	ECKD1H223PF	001 103 1510 9
C114	ECKD1H223PF	001 103 1510 9
C115	RCBS1H100JCY	001 103 5563 0
C201	ECQM1H473JZ	001 106 0810 9
C202	ECKD1H223PF	001 103 1510 9
C203	ECCD1H180KC	001 103 0448 2
C204	ECQP1471JZ	001 106 1107 1
C206	ECKD1H223PF	001 103 1510 9
C207	ECEA1CU101	001 120 2926 8
C208	ECEA1EK4R7	001 120 0294 5
C209	RCBS1H8R2KCY	001 103 5644 0

Ref. No.	Part No.	Part Code
C210	ECCD1H470K	001 103 0627 1
C211	ECFTD153KXL	001 108 0356 0
C212	ECQP1391JZ	001 106 1101 7
C214	ECEA1CKS100	001 120 2600 7
C220	ECCD1H150KC	001 103 0410 6
C301	ECEA1CKS100	001 120 2600 7
C303	ECEA1CU101	001 120 2926 8
C306	ECQP1471JZ	001 106 1107 1
C307	ECEA1HK010	001 120 0341 5
C308	ECEA1VK3R3	001 120 6172 0
C309	ECKD1H473ZF	001 103 5404 4
C310, C313	ECEA1HKR47	001 120 0338 0
C314	ECEA1HKR47	001 120 0338 0
C315	ECFTD153KXL	001 108 0356 0
C315	ECFTD223KXL	001 108 0342 6
C316	ECFTD153KXL	001 108 0356 0
C316	ECFTD223KXL	001 108 0342 6
C320	ECEA1CK220	001 120 0225 8
C701, C702	ECEA1EU102	001 120 2705 9
C704	ECKD1H103PF	001 103 1449 7
C705	ECEA1CU221	001 120 2833 2
C707	ECKD1H103PF	001 103 1449 7
C710	ECKD2H102ZF	001 103 7073 5
C711	ECKD1H103PF	001 103 1449 7
C715 ⚠	ECKDKC103PF2	001 103 3734 7
C716	ECEA1VU101	001 120 2929 5
C717	ECKD2H102ZF	001 103 7073 5
C718	ECKD1H103PF	001 103 1449 7
C719	ECEA1VU101E	001 120 2929 5
C720	ECKD1H103PF	001 103 1449 7
C725	ECEA1VU100	001 120 3270 1
C726	ECEA1VK3R3	001 120 6172 0
C902	ECKD1H103PF	001 103 1449 7
C903	ECEA25M4R7R	001 120 0838 5
C904	ECKD1H103PF	001 103 1449 7
C905	ECEA1HK010	001 120 0341 5
C906	ECKD1H223PF	001 103 1510 9
C908, C909	ECCD1H150KC	001 103 0410 6
C910	ECKD1H103PF	001 103 1449 7
C911	ECCD1H180KC	001 103 0448 2
C912	ECEA0JU332	001 120 4671 4
C913	ECKD1H103PF	001 103 1449 7
C914	ECEA0JS102	001 120 0152 8
C915	ECEA1HKR22	001 120 0336 2
C916, C917	ECCD1H101K	001 103 0341 2
C918	ECEA1CU330	001 120 2834 1
C920	ECEA0JS221	001 120 2925 9
C921	ECKD1H103PF	001 103 1449 7
C925	ECKD1H223PF	001 103 1510 9
C928	ECFTD472KXL	001 108 0746 0
C930	ECEA1EN4R7SE	001 120 4141 5

■ DESCRIPTION OF FL PANEL

• GRID ASSIGNMENT



Note: The grid of 3G and 8G are used for external connection.

• PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CONNECTION	F1	F1	NP	h	f	8G	AM	MW	CA	LW	7G	c	a	6G	e	d	g	5G
PIN NO.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
CONNECTION	b	NP	4G	NP	NP	3G	NP	NP	ch	2G	NP	u	1G	ℓ	NP	F2	F2	

■ REPLACEMENT PARTS LIST

Notes: ＊Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

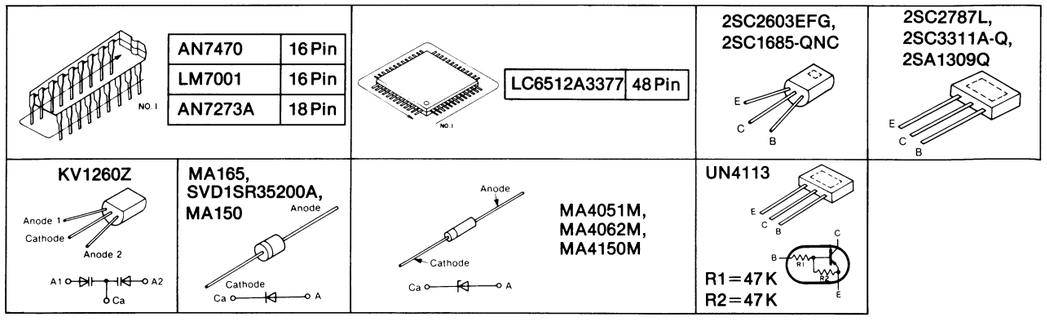
＊Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Code	Description
INTEGRATED CIRCUITS			
IC101	AN7273A	001 060 4214 8	I.C., FM I F DET.&AM CON., F
IC301	AN7470	001 060 4215 7	I.C., FM MPX,
IC901	LC6512A3377		INTEGRATED CIRCUIT, M.COMP
IC902	LM7001	001 061 3158 8	I.C., PLL CONTROL, , FLL FRE
TRANSISTORS			
Q101, Q102	2SC2787L	001 030 2508 3	TRANSISTOR
Q103, Q104	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q105	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q201	2SA1309Q	001 030 4058 0	TRANSISTOR
Q202, Q203	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q204, Q401 [EK]	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q402	2SA1309Q	001 030 4058 0	TRANSISTOR
Q403, Q404	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q701, Q702	2SC1685-QNC	001 030 2729 2	TRANSISTOR
Q702 (EW, EF, EB)	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q703	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q704, Q705	2SA1309Q	001 030 4058 0	TRANSISTOR
Q706	2SA1309Q	001 030 4058 0	TRANSISTOR
Q707	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q708	2SC1685-QNC	001 030 2729 2	TRANSISTOR
Q709	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q902, Q903	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q904, Q905	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q906, Q907	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q908	2SA1309Q	001 030 4058 0	TRANSISTOR
Q909	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q910	2SA1309Q	001 030 4058 0	TRANSISTOR
Q912	UN4113	001 030 2900 9	TRANSISTOR
DIODES			
D1	GP1U509M	001 033 0238 9	DIODE , REMOTE SENSOR
D201	KV1260Z	001 032 7237 7	DIODE
D301, D302	MA165	001 032 0494 0	DIODE
D402 (EK)	LN033417P	001 033 0407 0	DIODE, GAASP
D405, D406	MA165	001 032 0494 0	DIODE
D407	MA165	001 032 0494 0	DIODE
D701, D702 ⚠	SVD1SR35200A	001 032 3951 4	RECTIFIER
D703	MA4150M	001 032 4961 8	DIODE
D704	MA4062-M	001 032 7211 7	DIODE
D705, D710	MA165	001 032 0494 0	DIODE
D711	MA165	001 032 0494 0	DIODE
D714	MA4051-M	001 032 4947 6	DIODE
D901	MA165	001 032 0494 0	DIODE
D906, D907	MA162A	001 032 0493 1	DIODE
D908, D909	MA165	001 032 0494 0	DIODE
D910, D911	MA165	001 032 0494 0	DIODE
D912, D913	MA165	001 032 0494 0	DIODE
D914, D915	MA165	001 032 0494 0	DIODE
D916, D917	MA165	001 032 0494 0	DIODE
D918, D919	MA165	001 032 0494 0	DIODE
D920, D923	MA165	001 032 0494 0	DIODE
D927, D928	MA165	001 032 0494 0	DIODE
D929, D930	MA165	001 032 0494 0	DIODE
D931, D932	MA165	001 032 0494 0	DIODE
VARIABLE RESISTORS			
VR302	QVNB3A00B472	001 180 1655 0	VARIABLE RESISTOR
VARIABLE CAPACITORS			
CT201	ECRHA010A41	001 142 0565 9	TRIMMER
CT202	ECRHA020D41	001 142 0598 0	POLYETHYLENE CAPACITOR
COILS AND TRANSFORMERS			
L1, L201	ELEPK1R0MA	001 211 0854 9	COIL
L202	ELEPK1R0MA	001 211 0854 9	COIL
L203	SLA2B3-P	001 211 2249 6	ANTENNA COIL
L204	SL02B9R-P	001 211 2783 9	OSCILLATOR COIL
L205	SLA1B7R-P	001 211 2779 5	ANTENNA COIL
L206	SL01B5-P	001 211 2782 0	OSCILLATOR COIL
L701 [EK]	ELEXT101KA	——	CHOKE COIL
L901	ELEPKR22MA	001 211 0853 0	COIL
L902	ELEPK101KA	001 211 0855 8	CHOKE COIL
T101	SLI4B511-Z	001 211 0655 4	I.F. TRANSFORMER
T102	SLI4B513-Z	001 211 0656 3	I.F. TRANSFORMER
T201	SLI2B101-M	001 211 0654 5	I.F.TRANSFORMER
T701 ⚠ (EK)	SLT5K244-S	001 202 9017 3	POWER TRANSFORMER
T701 ⚠ (EW, EF, EB)	SLT5K246-S	001 202 9032 4	POWER TRANSFORMER
COMPONENT COMBINATIONS			
Z301, Z302	EXRP181K473C	001 230 1601 7	C-R COMBINATION
Z901	EXBF8E104J	001 230 2844 6	CNMBINATION COM
Z902	EXBF9E104J	001 230 2177 8	CNMBINATION COM
Z903	EXFP8331MW	001 230 1628 6	C-R COMBINATION
FILTERS			
CF101	SVFE107MS8A	001 241 0230 7	CERAMIC FILTER (RED)
CF101	SVFE107MS8D	001 241 0233 4	CERAMIC FILTER (BLACK)
CF101	SVFE107MS8E	001 241 0234 3	CERAMIC FILTER (WHITE)
CF102	SVFE107MS8A	001 241 0230 7	CERAMIC FILTER (RED)
CF102	SVFE107MS8D	001 241 0233 4	CERAMIC FILTER (BLACK)
CF102	SVFE107MS8E	001 241 0234 3	CERAMIC FILTER (WHITE)
CF201	SVFSFZ450F7L	001 241 0429 4	CERAMIC FILTER
OSCILLATORS			
X901	SVQ49U722-D	001 250 2142 7	CRYSTAL OSCILLATOR
X902	SVFCSB960D	001 241 1369 5	CRYSTAL OSCILLATOR
DISPLAYS			
FL1	SAD8MT10Z	001 001 0509 3	DISPLAY TUBE
FRONT PACKS			
FE	SNVFE202E02	003 462 2807 3	TUNER , FRONT END
FUSES			
F1 ⚠ (EK)	XBA2C04TB0	002 380 1459 0	FUSE , T0.4A250V
F1 ⚠ (EW, EF, EB)	XBA2C04TR0	002 380 0394 4	FUSE, T0.4A250V
F2 ⚠ (EW)	XBA2C25TR0	002 380 0412 9	FUSE, T2.5A 250V
SWITCHES			
S1	SSH1196-1	003 435 6383 3	PUSH SWITCH
S901, S902	SSG13	003 435 2951 9	SW, CH1/CH2
S903, S904	SSG13	003 435 2951 9	SW, CH3/CH4
S905, S906	SSG13	003 435 2951 9	SW, CH5/CH6
S907, S908	SSG13	003 435 2951 9	SW, CH7/CH8
S909, S910	SSG13	003 435 2951 9	SW, CH9/0
S911, S912	SSG13	003 435 2951 9	SW, FM/MW
S913, S914	SSG13	003 435 2951 9	SW, LW/MEMORY
S915, S916	SSG13	003 435 2951 9	SW, MODE/DOWN
S917	SSG13	003 435 2951 9	SW, UP
RELAYS			
RY701	SSY123	003 450 2725 0	RELAY

Ref. No.	Part No.	Part Code	Description
CABINET AND CHASSIS			
1	SBC666-5	016 702 6679 9	BUTTON, POWER
2	SGYTZ960L-KE	016 840 8120 4	FRONT PANEL
2-1	SDU327G	016 842 1749 1	FILTER
3	SBC941-1	016 702 7047 1	BUTTON
4	SBC942A	016 702 7028 4	BUTTON
5	SBC943	016 702 7032 8	BUTTON
6	SKC1931K99	016 800 3069 4	CABINET BODY
7	XTBS3+8JFZ1	005 501 2523 0	SCREW
8	SHE170-1	016 918 0579 6	SPACER
9	SJS9332A	003 403 7376 6	AC,OUTLET COVER
(EK)			
10	SGPTZ960L-KE	016 840 8118 8	REAR PANEL
(EW, EF, EB)			
10	SGPTZ960L-KK	016 840 8119 7	REAR PANEL
(EK)			
10-1	SKL293	016 828 0269 8	RUBBER
11	SHG6374-1	016 653 1225 7	RUBBER SPACER
12 ⚠	SJS9225	003 400 3946 5	AC OUTLET
(EW, EF, EB)			
12 ⚠	SJS9332B	003 403 7377 5	AC,OUTLET
(EK)			
13 ⚠	SJS9236	003 403 4660 7	AC INLET
14	SJS306	003 403 4936 8	CONNECTOR
15	SJF8508NP	003 410 8312 7	TERMINAL PLATE
16	XTBS3+12F1	005 501 2598 1	SCREW
17	SJT30345JQ	003 410 8077 9	TERMINAL PLATE
17	SJT30445JQ	003 410 8124 9	TERMINAL PLATE
17	SJT30945JQ	003 410 8125 8	TERMINAL PLATE
18	SJS50378JQ	003 403 7153 9	CONNECTOR
18	SJS50478JQ	003 403 7221 4	CONNECTOR
18	SJS50978JQ	003 403 7222 3	CONNECTOR
19	SUS858	016 726 0974 7	SPRING
20	SUW3083	016 650 5397 7	BRACKET
21	XTB3+8J	005 501 1535 0	SCREW
22 (EK)	SHR301	016 645 0044 0	CLAMPER
23	SJT347	003 410 1830 8	FUSE HOLDER
24 [EW]	SJT388	003 410 6092 8	LUG TERMINAL
25 [EK]	LN033417P		DIODE, GAASP

Ref. No.	Part No.	Part Code	Description
PACKINGS			
P1 (EK)	SPG5989	016 971 5163 5	CARTON BOX
P1 (EF)	SPG5990	016 971 5174 2	CARTON BOX
P1 (EW, EB)	SPG6079	016 971 5125 1	CARTON BOX
P2 (EW, EF, EB)	SPS4717-1	016 977 3368 2	PAD
P2 (EK)	SPS4717-2	016 977 3356 6	PAD
P3 (EK)	SPS4718	016 977 2975 9	PAD
P3 (EW, EF, EB)	SPS4718-1	016 977 3367 3	PAD
P4	SPP697	016 978 0194 3	PROTECTION COVER
P5	SPS5005	016 977 3366 4	PAD
P6 (EK)	SPS4755-1	016 977 3365 5	PAD
P6 (EW, EF, EB)	SPS5006	016 977 3364 6	PAD
ACCESSORIES			
A1 ⚠ (EW, EF, EB)	SFDAC05E03	003 490 4809 5	POWER CORD
A1 ⚠ (EK)	SFDAC05G02	003 490 2613 3	POWER CORD
A2	SPB1139-1	016 918 0615 9	AM LOOP ANTENNA
A3	SPB1153	016 918 0631 9	STABILIZER PIN
A3-1	SMA231M	016 632 1840 7	ANGLE
A3-2	SMA233-1M	016 631 0052 6	HOLDER
A3-3	XTN3+10AFZ	005 501 0340 3	SCREW
A4	SJPK2203-1	003 492 5777 2	CORD
A5	SSA270M	002 390 1568 0	FM ANTENNA CORD
A6	SJP9009	003 492 5594 7	PLUG
A7 (EW, EB)	SQF13019	016 983 5384 8	INSTRUCTION BOOK
A7 (EK, EF)	SQF13020	016 983 5385 7	INSTRUCTION BOOK

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



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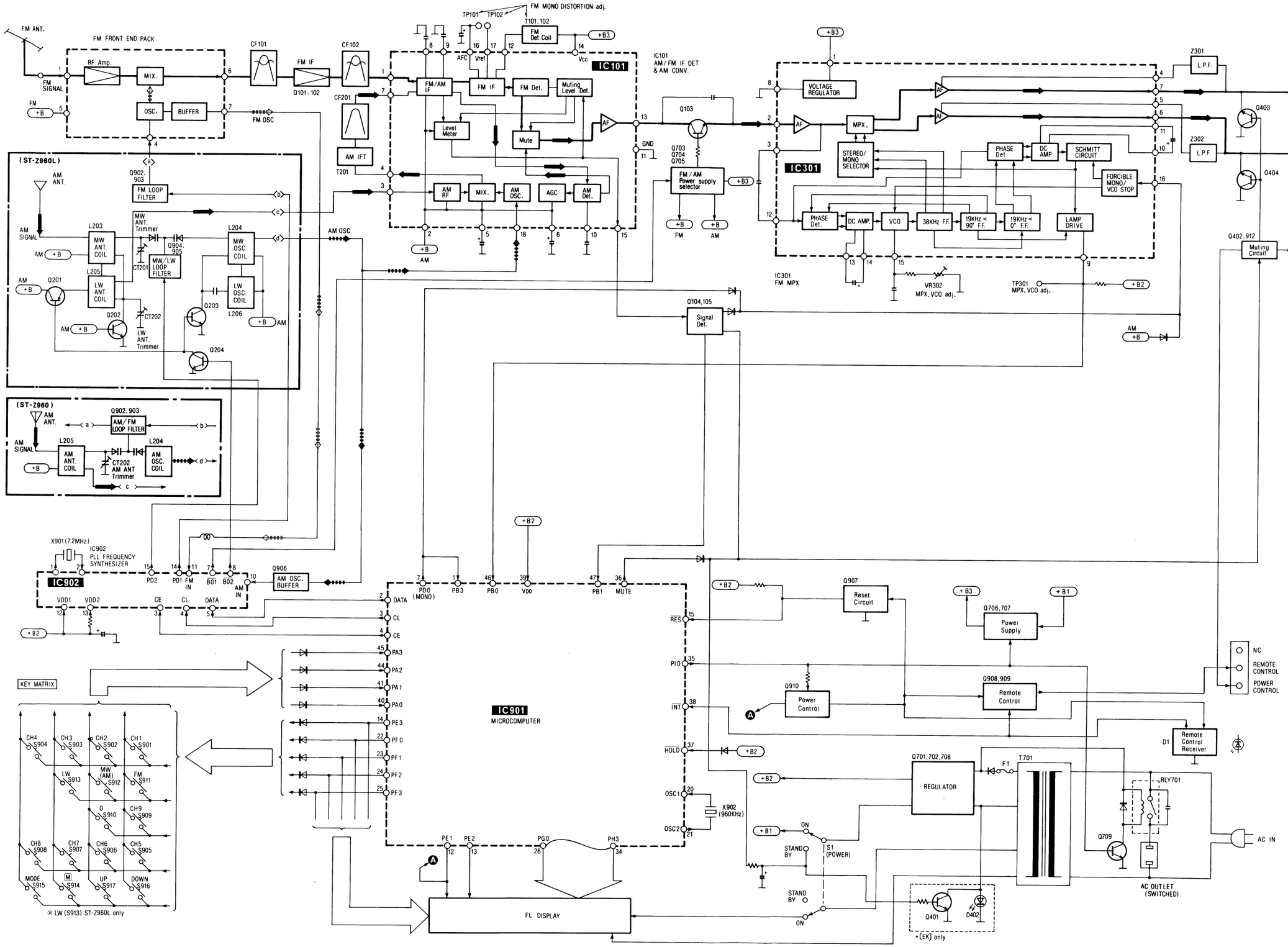
■ REPLACEMENT PARTS LIST

• Change of Parts List (ST-Z960 from ST-Z960L)

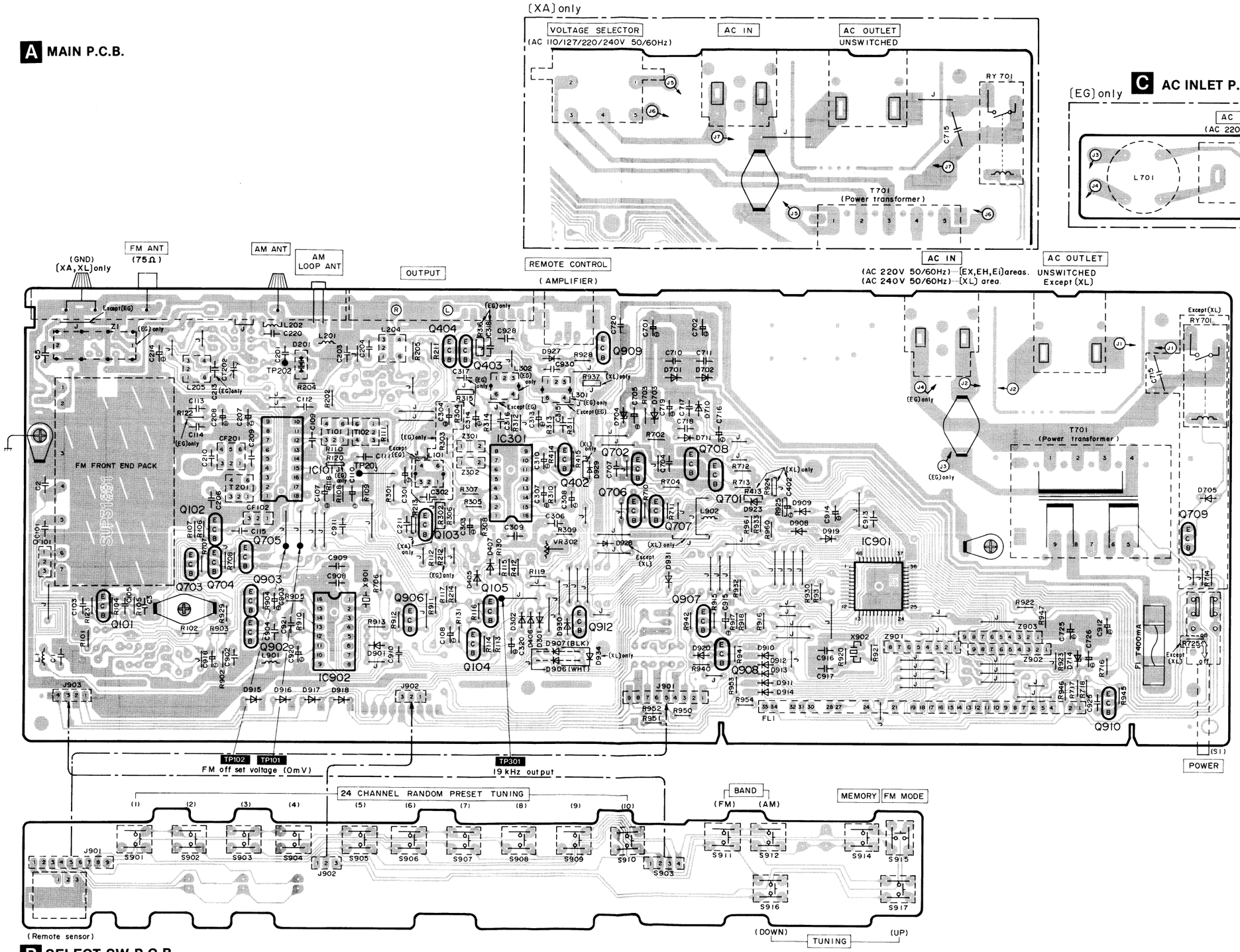
Ref. No.	Change of Part No.		Part Name & Description		Pcs/ Set	Remarks
	ST-Z960L [EK]	**ST-Z960 [EX, EH, XA, XL, EG, Ei]**				
RESISTORS						
R101	ERG1ANJ151	**ERDS2TJ101**	100Ω	[EG] only	(1)	
		ERDS2TJ151	150Ω		(1)	
R102	ERDS2TJ122	**ERDS2TJ102**	1kΩ	[EG] only	(1)	
R120	ERDS2TJ561	—		[EG] only	—	(Deletion)
R122	—	**ERDS2TJ103**	10kΩ	[EG] only	(1)	(Addition)
R201	ERDS2TJ103	—			—	(Deletion)
R202	ERDS2TJ822	**ERDS2TJ102**	1kΩ		(1)	
R203	ERDS2TJ102	—			—	(Deletion)
R205	ERDS2TJ102	**ERDS2TJ821**	820Ω		(1)	
R206	ERDS2TJ182	—			—	(Deletion)
R207	ERDS2TJ223	—			—	(Deletion)
R209	ERDS2TJ122	—			—	(Deletion)
R210	ERDS2TJ223	—			—	(Deletion)
R212	—	**ERDS2TJ183**	18kΩ	[EG] only	(1)	(Addition)
R213	ERDS2TJ3R9	**ERDS2TJ103**	10kΩ	[EG] only	(1)	
		—		[XA] only	—	(Deletion)
R215	ERDS2TJ102	—			—	(Deletion)
R301	ERDS2TJ333	**ERDS2TJ152**	1.5kΩ	[EG] only	(1)	
R302	ERDS2TJ3R9	**ERDS2TJ393**	39kΩ	[EG] only	(1)	
		—		[XA] only	—	(Deletion)
R303, 304	—	**ERDS2TJ123**	12kΩ	[EG] only	(2)	(Addition)
R307	ERDS2TJ274	**ERDS2TJ104**	100kΩ	[EG] only	(1)	
R308	ERG1ANJ151	**ERDS2TJ151**	150Ω		(1)	
R311, 312	ERDS2TJ332	**ERDS2TJ272**	2.7kΩ	[EG] only	(2)	
R313, 314	ERDS2TJ104	**ERDS2TJ562**	5.6kΩ	[EG] only	(2)	
R315, 316	—	**ERDS2TJ102**	1kΩ	[EG] only	(2)	(Addition)
R402	ERDS2TJ821	—			—	(Deletion)
R408	ERDS2TJ222	—			—	(Deletion)
R413	—	**ERDS2TJ562**	5.6kΩ	[XL] only	(1)	(Addition)
R704	ERDS2TJ272	**ERDS2TJ102**	1kΩ		(1)	
R714	ERDS2TJ562	—		[XL] only	—	(Deletion)
R725	ERDS2TJ103	—		[XL] only	—	(Deletion)
R906	ERDS2TJ153	—			—	(Deletion)
R907	ERDS2TJ332	—			—	(Deletion)
R908	ERDS2TJ102	—			—	(Deletion)
R914	ERDS2TJ103	—			—	(Deletion)
R924	ERDS2TJ392	—		[XL] only	—	(Deletion)
R925	ERDS2TJ473	—		[XL] only	—	(Deletion)
R929	ERG1ANJ151	**ERDS2TJ151**	150Ω		(1)	
R937	ERDS2TJ104	—		[XL] only	—	(Deletion)
CAPACITORS						
C3	ECKT1H103ZF	—		[EG] only	—	(Deletion)
C5	—	**ECCD1H220KC**	22pF	[EG] only	(1)	(Addition)
C202	ECKD1H223PF	—			—	(Deletion)
C203	ECCD1H180KC	**ECCD1H150KC**	15pF		(1)	
C212	ECQP1391JZ	—			—	(Deletion)
C213	—	**ECCD1H223ZF**	0.022μF	[EG] only	(1)	(Addition)
C302	—	**ECKW1H471KB**	470pF	[EG] only	(1)	(Addition)
C304	—	**ECEA1CK100**	10μF	[EG] only	(1)	(Addition)
C313, 314	ECEA1HKR47	**ECEA1VK3R3**	3.3μF	[EG] only	(2)	
C315, 316	ECFTD153KXL	**ECFTD332KXL**	0.0033μF	[EG] only	(2)	
C317, 318	—	**ECFTD392KXL**	0.0039μF	[EG] only	(2)	(Addition)
C402	—	**ECEA1EK4R7**	4.7μF	[XL] only	(1)	(Addition)
C715	ECKDKC103PF2	—		[XL] only	—	(Deletion)
C905	ECEA1HK010	—			—	(Deletion)
C906	ECKD1H223PF	—			—	(Deletion)
C928	ECFTD472KXL	**ECFTD392KXL**	0.0039μF		(1)	
TRANSISTORS						
Q201	2SA1309Q	—			—	(Deletion)
Q202~204	2SC3311A-Q	—			—	(Deletion)
Q401	2SC3311A-Q	—			—	(Deletion)
Q702	2SC1685-QNC	**2SC3311A-Q**			(1)	
Q709	2SC3311A-Q	—		[XL] only	—	(Deletion)
Q904, 905	2SC2603EFG	—			—	(Deletion)
DIODES						
D402	LN033417P	—			—	(Deletion)
D705	MA165	—		[XL] only	—	(Deletion)
D923	MA165	—		[XL] only	—	(Deletion)
D928, 929	MA165	—		[XL] only	—	(Deletion)
D932	MA165	—			—	(Deletion)
D934	—	**MA165**		[XL] only	(1)	(Addition)

Ref. No.	Change of Part No.		Part Name & Description		Pcs/ Set	Remarks
	ST-Z960L [EK]	**ST-Z960 [EX, EH, XA, XL, EG, Ei]**				
VARIABLE CAPACITORS						
CT201	ECRHA010A41	—	TRIMMER		—	(Deletion)
CT202	ECRHA020D41	**ECRHA010A41**	TRIMMER		(1)	
COILS AND TRANSFORMER						
L101	—	**SLM1B10-M**	COIL	[EG] only	(1)	(Addition)
L203	SLA2B3-P	—	ANTENNA COIL		—	(Deletion)
L204	SLO2B9R-P	**SL02B7-W**	OSCILLATOR COIL		(1)	
L205	SLA1B7R-P	**SLA2B1-P**	ANTENNA COIL		(1)	
L206	SL01B5-P	—	OSCILLATOR COIL		—	(Deletion)
L301, 302	—	**SLM5B2-1P**	L.P.F.	[EG] only	(2)	
L701	ELEXT101KA	**SLQZ650MH49**	CHOKE COIL	[EG] only	(1)	
T701	SLT5K244-S	**SLT5K245-S**	POWER TRANSFORMER	[XA] only	(1)	⚠
		SLT5K246-S	POWER TRANSFORMER	[others]	(1)	⚠
COMPONENT COMBINATIONS						
Z1	—	**SLA4Z13-Z**	C-L COMBINATION	[EG] only	(1)	(Addition)
Z301, 302	EXRP181K473T	**EXRP102K473T**	C-R COMBINATION	[EG] only	(2)	
FILTER						
CF101	SVFE107MS8-Q	**SVFE107MZ2-Q**		[EG, Ei] only	(1)	
FRONT PACK						
FE	SNVFE202E02	**SNVFE306G25**	FRONT END	[EG] only	(1)	
		SNVFE306E15	FRONT END	[Ei] only	(1)	
FUSE						
F1	XBA2C04TB0	**XBA2C04TR0**	250V, T0.4A		(1)	⚠
F2	—	**XBA2C25TR0**	250V, T2.5A	[EW] only	(1)	⚠
SWITCHES						
S701	—	**SSR187-1**	VOLTAGE SELECTOR	[XA] only	(1)	
S913	SSG13	—	SW, LW		—	(Deletion)
RELAYS						
RY701	SSY123	—		[XL] only	—	(Deletion)
CABINET AND CHASSIS						
2	SGYTZ960L-KE	**SGYTZ960-KE**	FRONT PANEL		(1)	
9	SJS9332A	**SJS9330A**	AC OUTLET COVER	[XA] only	(1)	
10	SGPTZ960L-KK	**SGPTZ960-KE**	REAR PANEL		(1)	
12	SJS9332B	**SJS9225**	AC OUTLET	[EX, EH, EG, Ei] only	(1)	⚠
		SJS9330B	AC OUTLET	[XA] only	(1)	⚠
		—	AC OUTLET	[XL] only	—	(Deletion)
13	SJS9236	**SJS9231B**	AC INLET	[EG] only	(1)	⚠
		SJS9236	AC INLET	[others]	(1)	⚠
15	SJF8508NP	**SJF8614NP**	TERMINAL PLATE	[XA, XL] only	(1)	
		SJF8508NP	TERMINAL PLATE	[others]	(1)	
26	—	**SUS867**	SPRING	[EG] only	(1)	(Addition)
27	—	**SUS803**	SPRING	[EG] only	(1)	(Addition)
28	—	**SJS9231A**	AC INLET COVER	[EG] only	(1)	(Addition)
PACKINGS						
P1	SPG5989	**SPG5986**	CARTON BOX	[EX, EH, EG, Ei] only	(1)	
		SPG6078	CARTON BOX	[XA, XL] only	(1)	
P2	SPS4717-2	**SPS4717-1**	PAD	[EX, EH, EG, Ei] only	(1)	
		SPS4717-2	PAD	[XA, XL] only	(1)	
P3	SPS4718	**SPS4718-1**	PAD	[EX, EH, EG, Ei] only	(1)	
		SPS4718	PAD	[XA, XL] only	(1)	
P6	SPS4755-1	**SPS5006**	PAD	[EX, EH, EG, Ei] only	(1)	
		SPS4755-1	PAD	[XA, XL] only	(1)	
ACCESSORIES						
A1	SFDAC05G02	**SFDAC05E03**	POWER CORD	[EX, EH, EG, Ei] only	(1)	
		SJA163	POWER CORD	[XL] only	(1)	
		SJA168-1	POWER CORD	[XA] only	(1)	
A5	SSA270M	**SSA269M**	FM ANTENNA CORD	[XA, XL] only	(1)	
		SSA270M	FM ANTENNA CORD	[others]	(1)	
A6	SJP9009	**SJP9215**	PLUG	[XA] only	(1)	
A7	SQF13020	**SQF13019**	INSTRUCTION BOOK	[EX, EH] only	(1)	
		SQF13020	INSTRUCTION BOOK	[XA] only	(1)	
		SQF13021	INSTRUCTION BOOK	[EG] only	(1)	
		SQF13022	INSTRUCTION BOOK	[Ei] only	(1)	
		SQF13023	INSTRUCTION BOOK	[XL] only	(1)	

■ BLOCK DIAGRAM

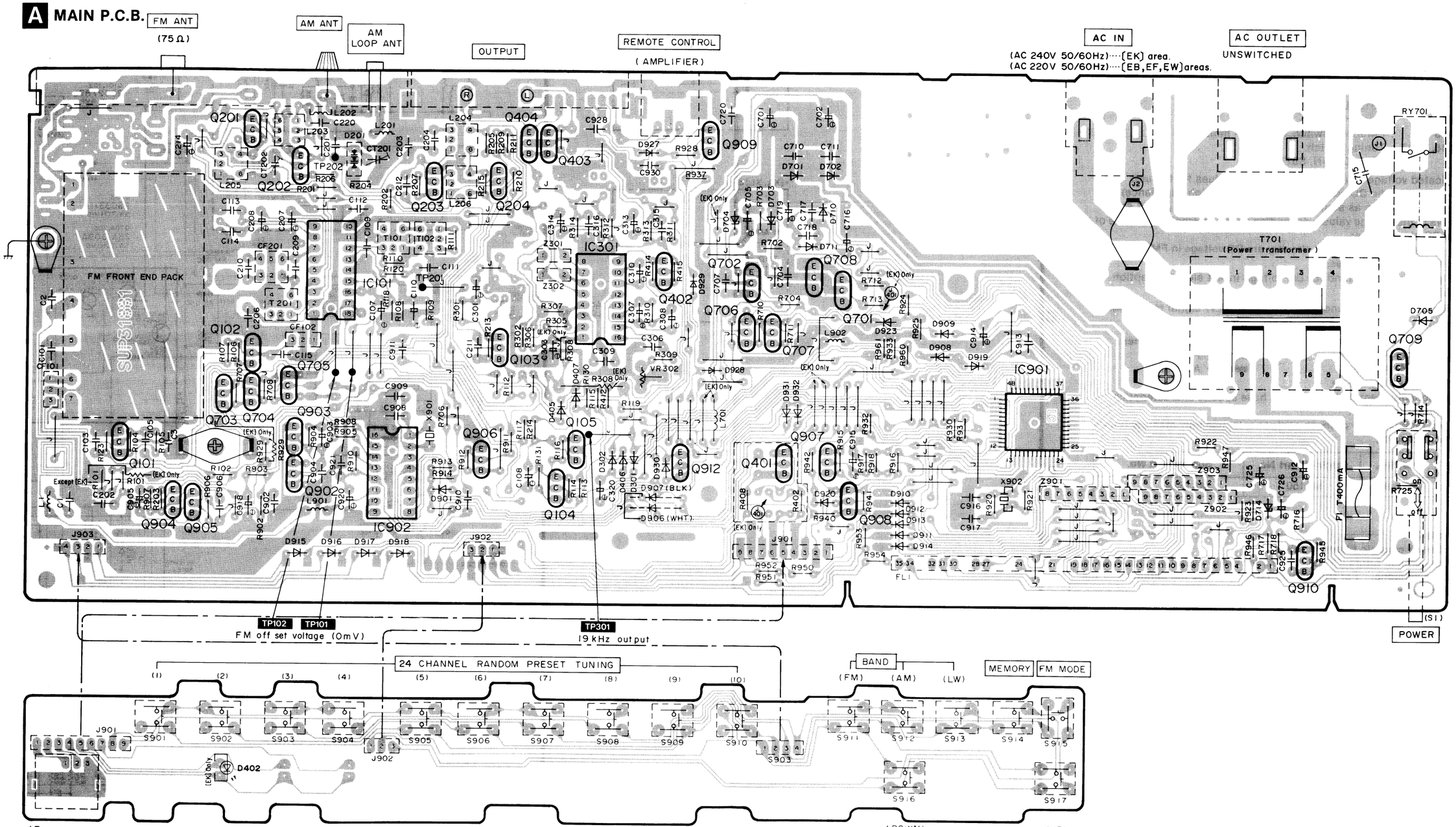


■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM (ST-Z960)



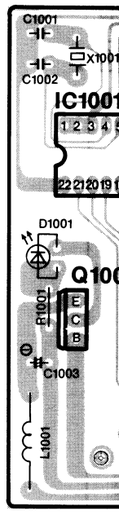
■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM (ST-Z960L)

A MAIN P.C.B.



B SELECT SW P.C.B.

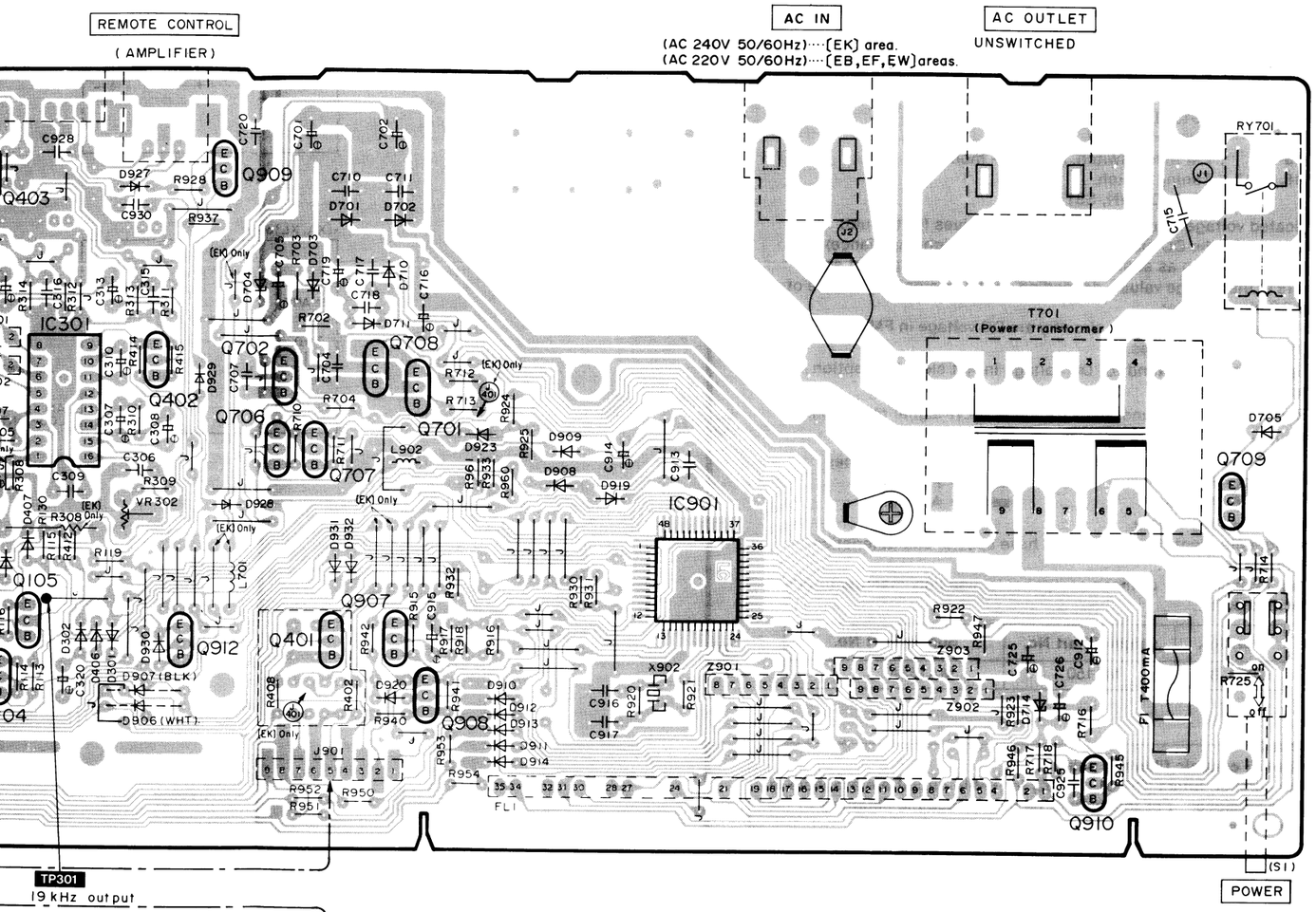
•Circuit Bo

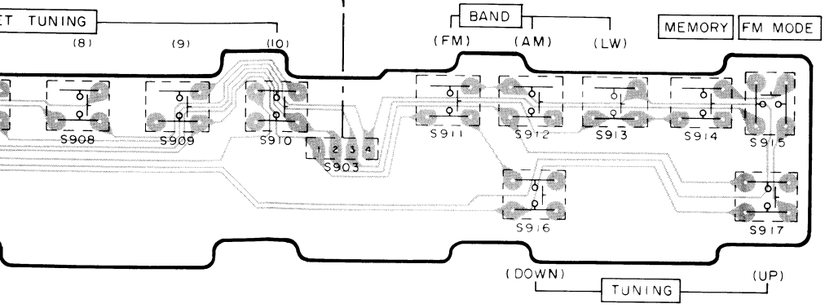


• Key Num

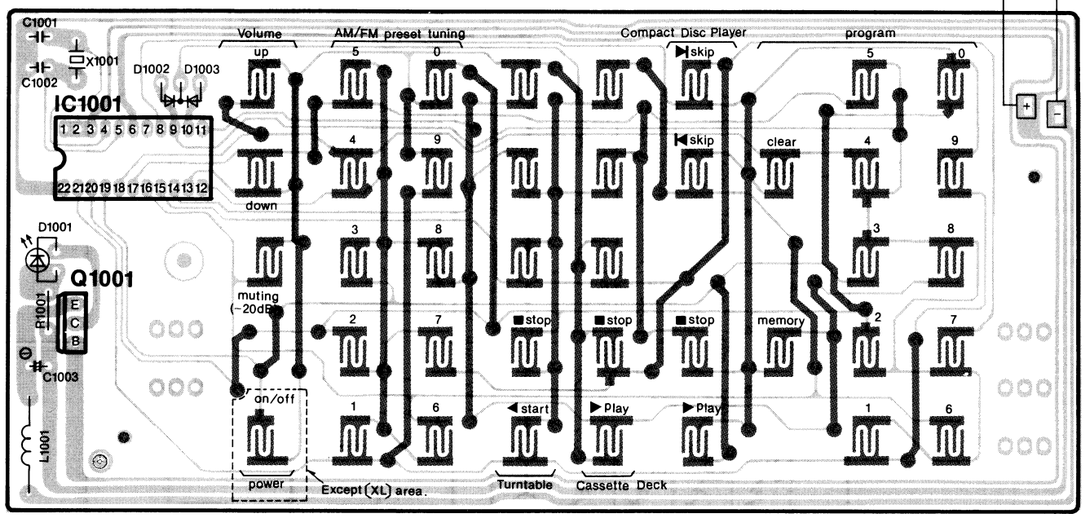
Key No.	
0	p
1	p
2	p
3	p
4	p
5	p
6	p
7	p
8	p
9	p
10	C
11	p
12	C
13	C
14	C
15	p
16	T

M (ST-Z960L)

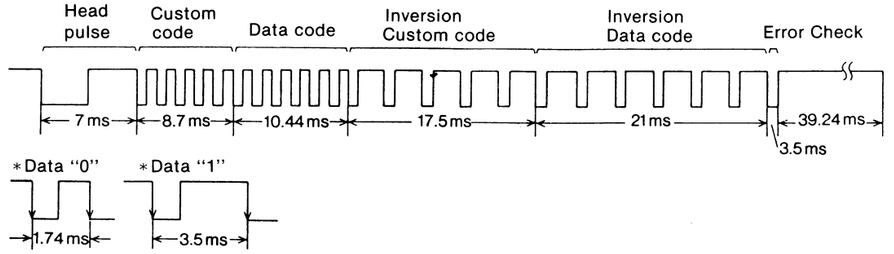




•Circuit Board of Remote Control Transmitter



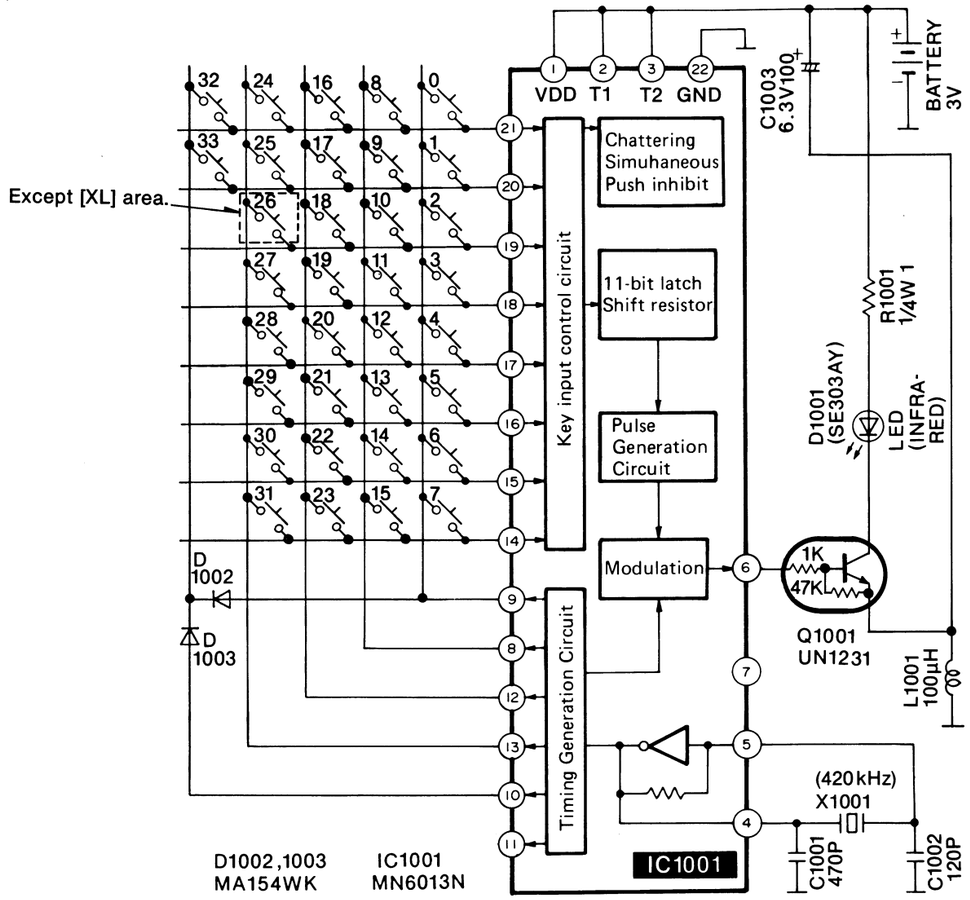
• Key Number Description and Data Code of Remote Control Transmitter



Key No.	Function	Custom code	Data code	Key No.	Function	Custom code	Data code
0	program 1	01100	010000	17	Tuning 2	01001	010001
1	program 2	01100	010001	18	Tuning 3	01001	010010
2	program 3	01100	010010	19	Tuning 4	01001	010011
3	program 4	01100	010011	20	Tuning 5	01001	010100
4	program 5	01100	010100	21	Tuning 6	01001	010101
5	program 6	01100	010101	22	Tuning 7	01001	010110
6	program 7	01100	010110	23	Tuning 8	01001	010111
7	program 8	01100	010111	24	Tuning 9	01001	011000
8	program 9	01100	011000	25	Tuning 0	01001	011001
9	program 0	01100	011001	26	on/off...Except [XL] area.	01001	100000
10	CD play ▶	01100	001010	27	volume up	01001	100100
11	program clear	01100	001011	28	volume down	01001	100101
12	CD stop ■	01100	000000	29	muting (−20dB)	01001	100111
13	CD skip ⏮	01100	000010	30	Deck stop ■	01001	000000
14	CD skip ⏭	01100	000011	31	Deck play ▶	01001	001010
15	program memory	01100	101010	32	Turntable start ◀	01001	001100
16	Tuning 1	01001	010000	33	Turntable stop ■	01001	001101

■ SCHEMATIC DIAGRAM OF REMOTE CONTROL TRANSMITTER

(EUR64700/EUR64705)



Key No.	FUNCTION	Key No.	FUNCTION	Key No.	FUNCTION
0	program 1	12	CD stop ■	24	Tuning 9
1	program 2	13	CD skip ⏮	25	Tuning 0
2	program 3	14	CD skip ⏭	26	on/off...Except [XL] area.
3	program 4	15	program memory	27	volume up
4	program 5	16	Tuning 1	28	volume down
5	program 6	17	Tuning 2	29	muting (−20dB)
6	program 7	18	Tuning 3	30	Deck stop ■
7	program 8	19	Tuning 4	31	Deck play ▶
8	program 9	20	Tuning 5	32	Turntable start ◀
9	program 0	21	Tuning 6	33	Turntable stop ■
10	CD play ▶	22	Tuning 7		
11	program clear	23	Tuning 8		

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Note 1:

- **S1** : Power switch in "ON" position.
- **S701** : Voltage selector in "240V" position (For [XA] area.)
- **S901～S910** : Preset tuning switch.
  (S901: CH1, S902: CH2, S903: CH3, S904: CH4, S905: CH5, S906: CH6, S907: CH7, S908: CH8, S909: CH9, S910: CH0)
- **S911～S913** : Band selectors.
  S911: FM, S912: MW (AM)
  S913: LW (ST-Z960L only)
- **S914** : Memory switch.
- **S915** : FM mode switch. (stereo ↔ mono)
- **S916, S917** : Tuning switch.
  S916: DOWN, S917: UP

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  All voltage values shown in circuitry are DC voltage in FM signal (no signal) reception modes.
  * Figures in ( ) stand for DC voltage in AM signal reception mode.
  * Figures in ⌜ ⌟ stand for DC voltage in LW signal reception.
  * Figures in ▭ stand for muting mode.

  Positive voltage lines — AF signal lines
  FM OSC — FM signal
  AM OSC — AM signal

- Important safety notice.
  Components identified by ⚠ mark have special characteristics important for safety.
  When replacing any of these components, use only manufacturer's specified parts.

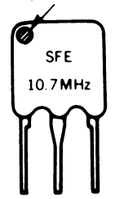
Part No.	Original Part No.	Supply Part No.
D906, 907	MA150	MA162A

Note 2:

- **Use of ceramic filters in pairs**

The ceramic filters (CF101, CF102) for FM-IF circuit are available in three versions. For this circuit, be sure to use the ceramics of the same version in a pair.
At repairing and replacement, pay close attention to the diodes (D906, D907) for use as different diodes must be used depending on each version of the ceramic filters.

Color marking
(Red, Black or White)



VERSION (Color)	D906	D907	CENTER FREQUENCY
Black	×	○	10.65MHz
Red	×	×	10.70MHz
White	○	×	10.75MHz

Note: ○ mark: Diode is used.
× mark: Diode is not used.

* Caution!

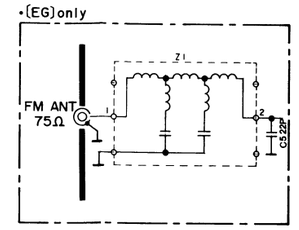
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

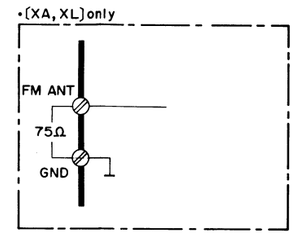
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

1 2 3

A B C D E F

(ST-Z960 only)





TER

BATTERY 3V

LED (INFRA-RED)

1/4W 1

L1001 100μH

C1002 120P

TION

t [XL] area.

B)

t ◀

o ■

■SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Note 1:

- **S1** : Power switch in "ON" position.
- **S701** : Voltage selector in "240V" position (For [XA] area.)
- **S901~S910** : Preset tuning switch.
  (S901: CH1, S902: CH2, S903: CH3, S904: CH4, S905: CH5, S906: CH6, S907: CH7, S908: CH8, S909: CH9, S910: CH0)
- **S911~S913** : Band selectors.
  S911: FM, S912: MW (AM)
  S913: LW (ST-Z960L only)
- **S914** : Memory switch.
- **S915** : FM mode switch. (stereo ↔ mono)
- **S916, S917** : Tuning switch.
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  All voltage values shown in circuitry are DC voltage in FM signal (no signal) reception modes.
  * Figures in ( ) stand for DC voltage in AM signal reception mode.
  * Figures in ⌜ ⌟ stand for DC voltage in LW signal reception.
  * Figures in ▭ stand for muting mode.

  Positive voltage lines — AF signal lines
  FM OSC — FM signal
  AM OSC — AM signal
- Important safety notice.
  Components identified by ⚠ mark have special characteristics important for safety.
  When replacing any of these components, use only manufacturer's specified parts.

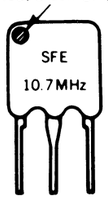
Part No.	Original Part No.	Supply Part No.
D906, 907	MA150	MA162A

Note 2:

- **Use of ceramic filters in pairs**

The ceramic filters (CF101, CF102) for FM-IF circuit are available in three versions. For this circuit, be sure to use the ceramics of the same version in a pair.
At repairing and replacement, pay close attention to the diodes (D906, D907) for use as different diodes must be used depending on each version of the ceramic filters.

Color marking
(Red, Black or White)



VERSION (Color)	D906	D907	CENTER FREQUENCY
Black	×	○	10.65MHz
Red	×	×	10.70MHz
White	○	×	10.75MHz

Note: ○ mark: Diode is used.
× mark: Diode is not used.

* Caution!

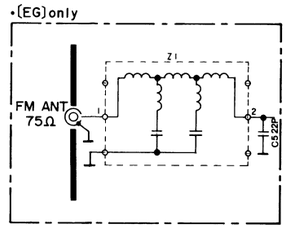
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

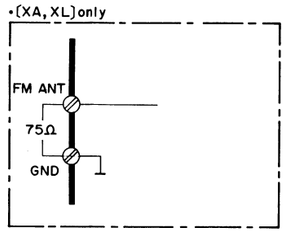
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

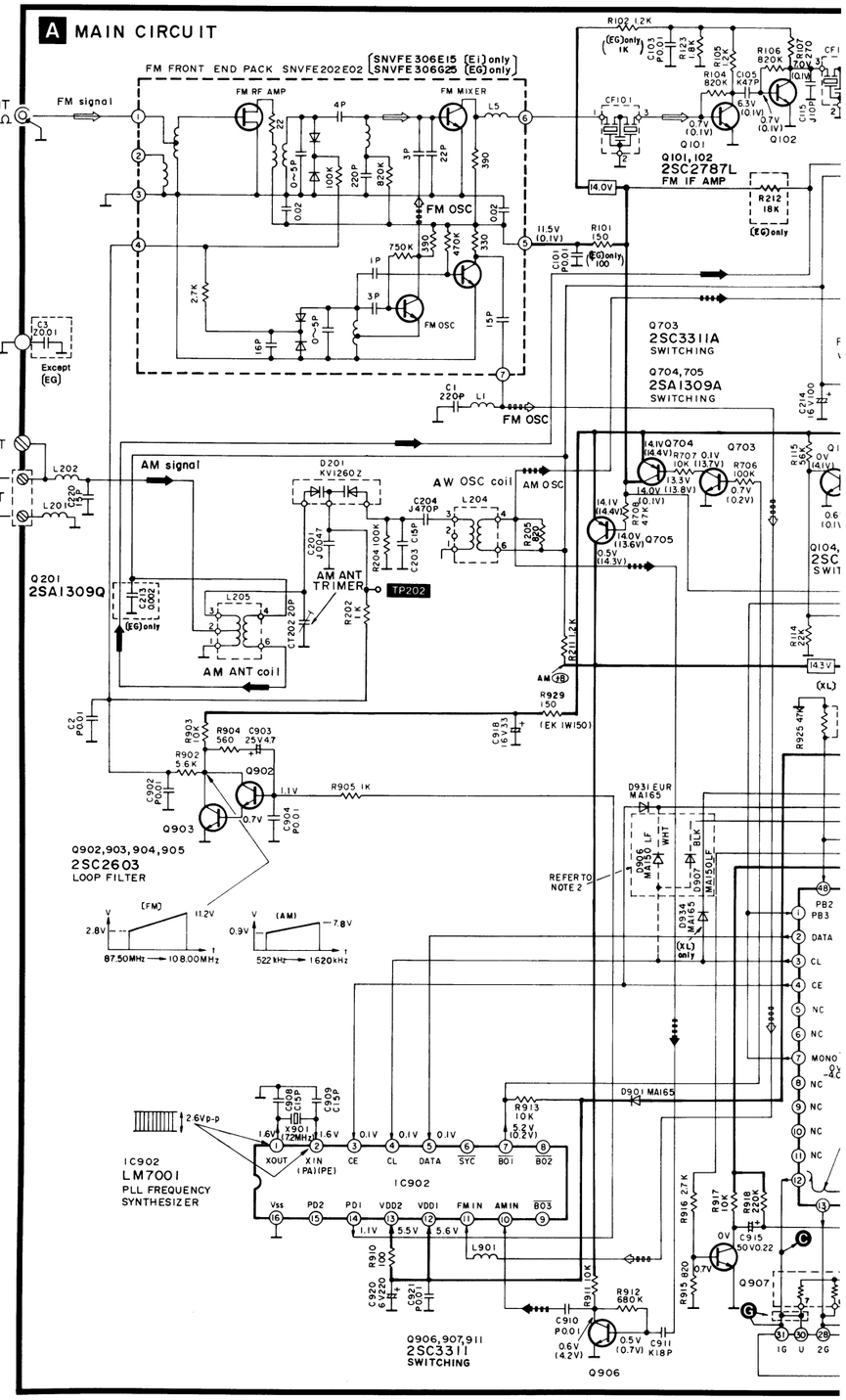
1 2 3 4 5 6 7

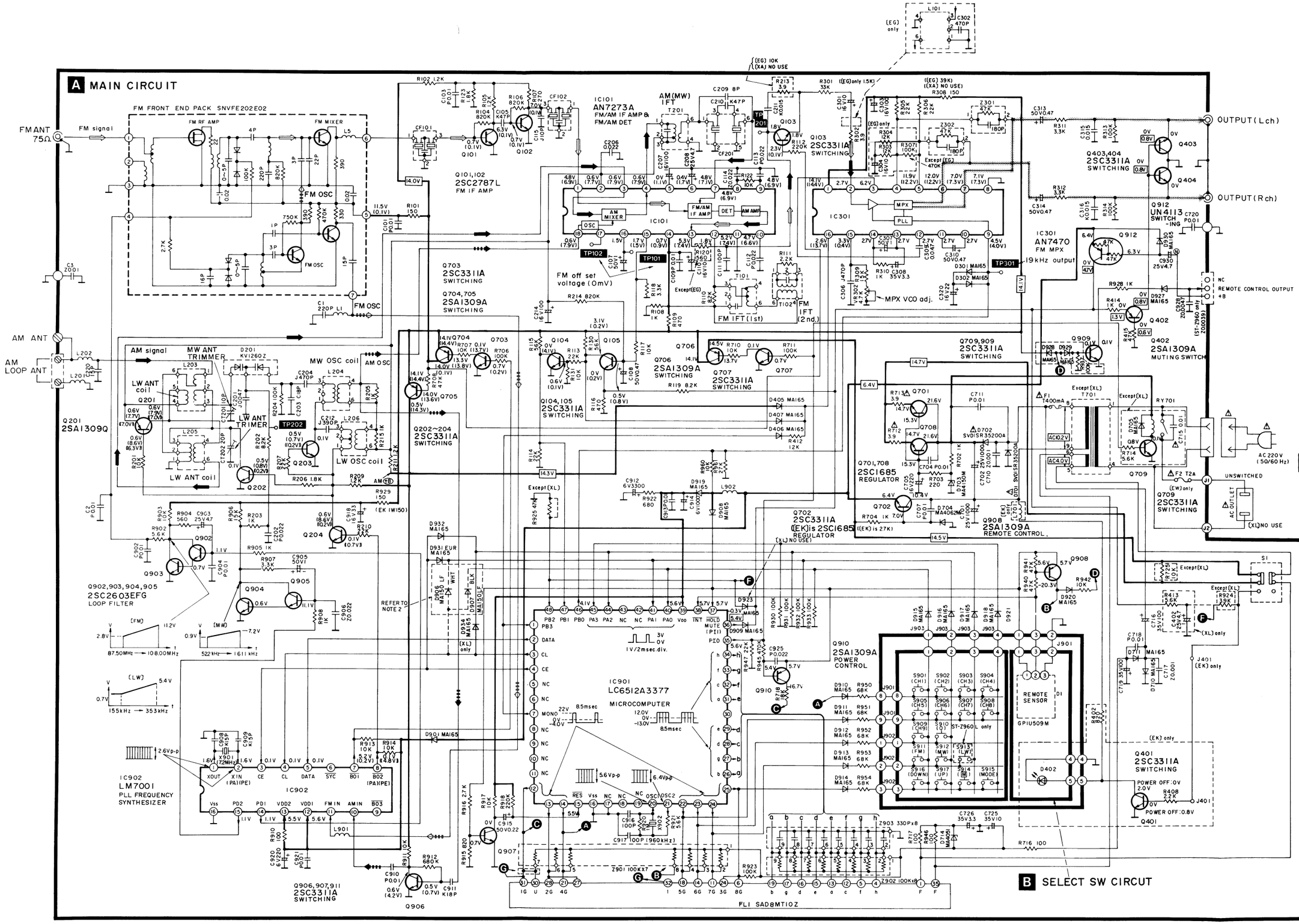
A B C D E F

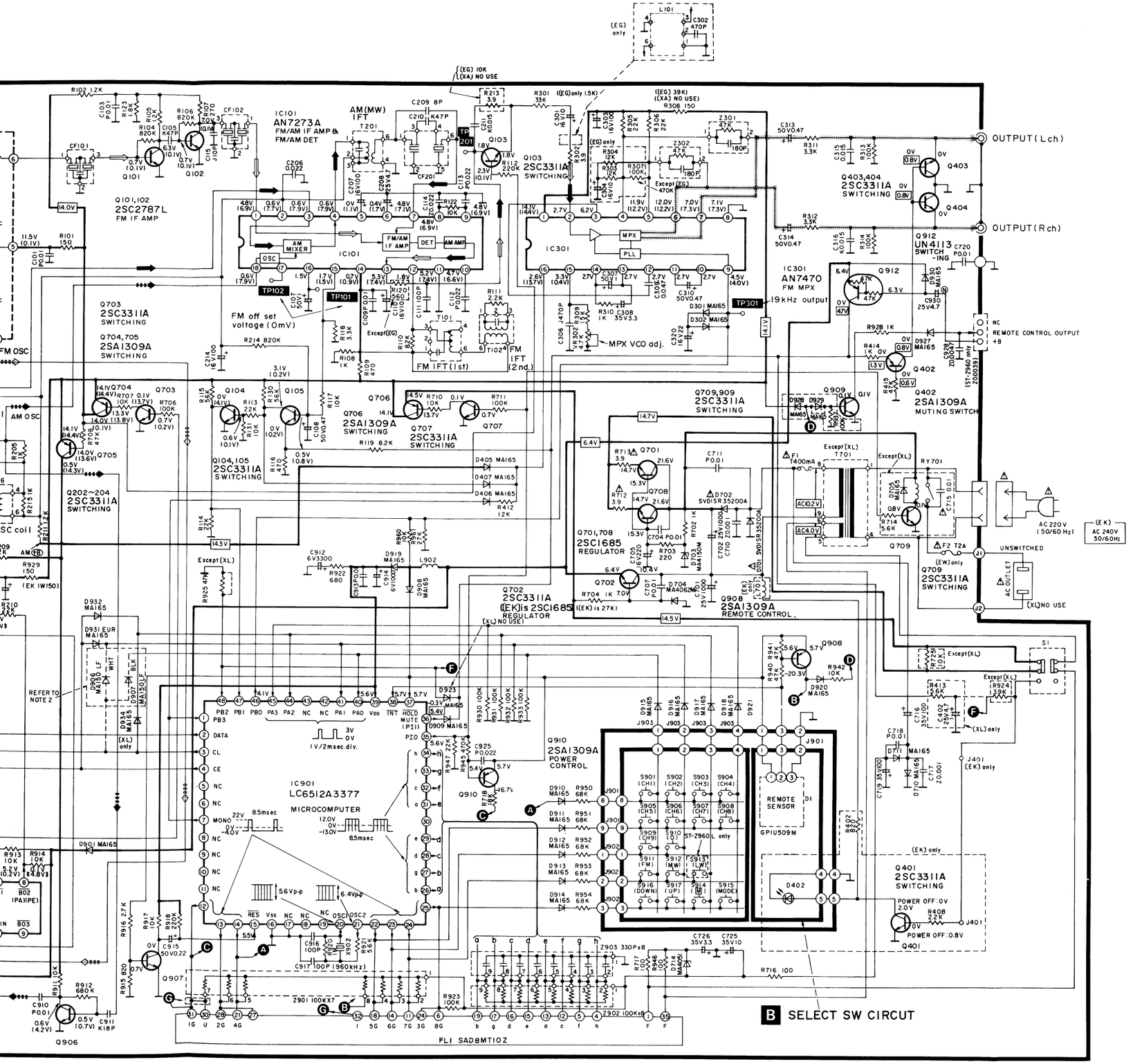
(ST-Z960 only)



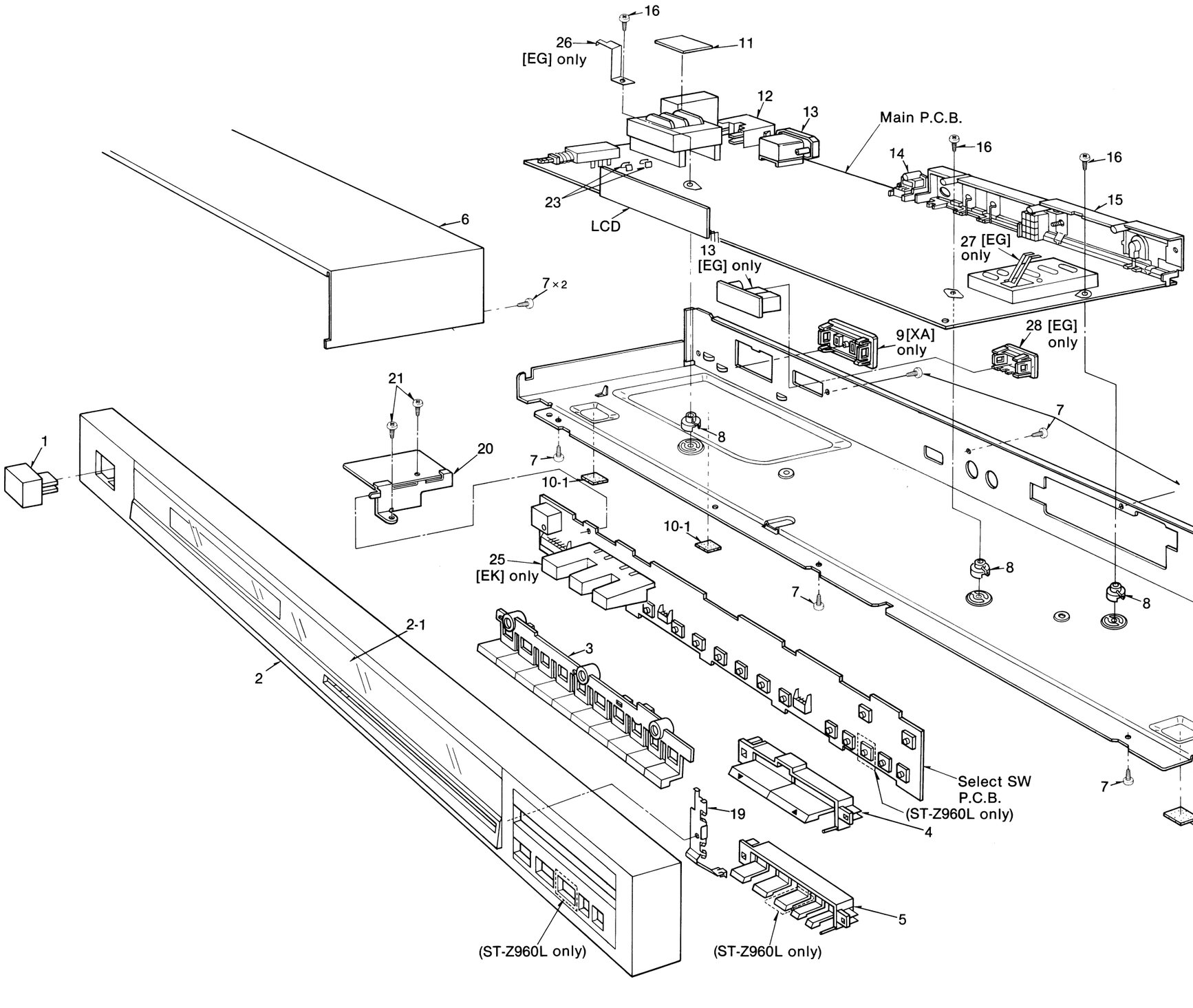




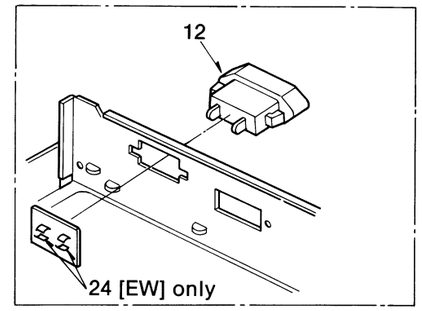

A MAIN CIRCUIT
FM FRONT END PACK SNVFE202E02
FM RF AMP
FM MIXER
FM OSC
FM ANT 75Ω
FM signal
AM ANT
AM LOOP ANT
AM signal
MW ANT TRIMMER
LW ANT TRIMMER
LW ANT coil
MW OSC coil
LW OSC coil
AM OSC
Q201 2SA1309Q
Q202
Q203
Q204
Q902
Q903
Q904
Q905
Q902,903,904,905 2SC2603EFG LOOP FILTER
REFER TO NOTE 2
Q906,907,911 2SC3311A SWITCHING
Q906
Q907
IC902 LM7001 PLL FREQUENCY SYNTHESIZER
X901
IC901 LC65I2A3377 MICROCOMPUTER
IC101 AN7273A FM/AM IF AMP & FM/AM DET
Q101,102 2SC2787L FM IF AMP
AM(MW) IFT
FM IFT (1st)
FM IFT (2nd.)
FM off set voltage (OmV)
Q703 2SC3311A SWITCHING
Q704,705 2SA1309A SWITCHING
Q104,105 2SC3311A SWITCHING
Q202~204 2SC3311A SWITCHING
Q706 2SA1309A SWITCHING
Q707 2SC3311A SWITCHING
Q709,909 2SC3311A SWITCHING
Q701,708 2SC1685 REGULATOR
Q702 2SC3311A (EK) is 2SC1685 REGULATOR
Q908 2SA1309A REMOTE CONTROL
Q910 2SA1309A POWER CONTROL
Q403,404 2SC3311A SWITCHING
Q912 UN4113 SWITCHING
IC301 AN7470 FM MPX
MPX VCO adj.
19kHz output
Q402 2SA1309A MUTING SWITCH
Q401 2SC3311A SWITCHING
OUTPUT (Lch)
OUTPUT (Rch)
REMOTE CONTROL OUTPUT +B
AC 220V (50/60 Hz)
UNSWITCHED
AC OUTLET
REMOTE SENSOR GP1U509M
B SELECT SW CIRCUT
FLI SAD8MTIOZ
Z901 100KX7
Z902 100KX8
Z903 330Px8
(EG) only
(EG) 10K (XAJ) NO USE
(EG) 39K (XAJ) NO USE
(EG) only 1.5K
Except (EG) 470K
Except (XL)
(XL) NO USE
(XL) only
(EK) only
(EW) only
ST-Z960L only
(ST-7960 and ZD0039)
(EK) is 27K
POWER OFF: 0V
POWER OFF: 0.8V


IC101
AN7273A
FM/AM IF AMP &
FM/AM DET
AM(MW)
IFT
T201
Q101,102
2SC2787L
FM IF AMP
Q103
2SC3311A
SWITCHING
IC301
AN7470
FM MPX
19kHz output
MPX VCO adj.
FM IFT(1st)
FM IFT
(2nd.)
FM off set
voltage (OmV)
Q703
2SC3311A
SWITCHING
Q704,705
2SA1309A
SWITCHING
Q104,105
2SC3311A
SWITCHING
Q202~204
2SC3311A
SWITCHING
Q706
2SA1309A
SWITCHING
Q707
2SC3311A
SWITCHING
Q709,909
2SC3311A
SWITCHING
Q708
Q701,708
2SC1685
REGULATOR
Q702
2SC3311A
((EK)is 2SC1685
REGULATOR
(XL)NO USE)
Q403,404
2SC3311A
SWITCHING
Q912
UN4113
SWITCHING
Q909
Q911
Q402
2SA1309A
MUTING SWITCH
Q908
2SA1309A
REMOTE CONTROL
Q910
2SA1309A
POWER
CONTROL
Q907
Q906
IC901
LC6512A3377
MICROCOMPUTER
Q401
2SC3311A
SWITCHING
POWER OFF:0V
2.0V
POWER OFF:0.8V
REMOTE
SENSOR
GPIU509M
ST-Z960L only
OUTPUT(Lch)
OUTPUT(Rch)
REMOTE CONTROL OUTPUT
+B
NC
AC 220V
(50/60Hz)
(EK)
AC 240V
50/60Hz
UNSWITCHED
AC OUTLET
(XL)NO USE
(EW)only
VOLTAGE
SELECTOR
AC110/127/
220/240V
(50/60Hz)
FLI SAD8MT10Z
REFER TO
NOTE 2
(EG) only
(EG) 10K
(XA) NO USE
((EG) only 1.5K)
((EG) 39K)
(XA) NO USE)
Except(XL)
Except(EG)
Except EG
470K
(XL) only
(EK) only
(EW)only
TP101
TP102
TP201
TP301
F1
T400mA
F2 T2A
S1
D1
J1
J2
J401
J901
J902
J903
RY701
T701
L701
L902
L301
L302
S701
D402
D920
D923
D927
D930
D931
D932
D934
D901
D907
D908
D909
D919
D921
D928
D929
D931 EUR
MA165
D906
MA150 LF
WHT
D907
BLK
MA150LF
D934
MA165
(XL)
only
AM OSC
FM OSC
SC coil
(EK IW150)
B SELECT SW CIRCUT
C AC INLET CIRCUIT
• (EG) only
• (XA) only

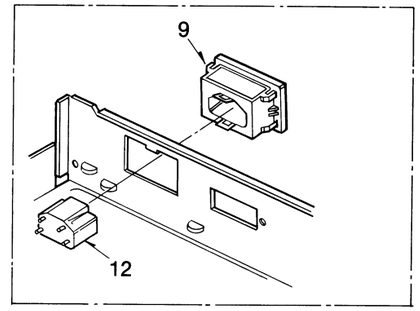
■ EXPLODED VIEW

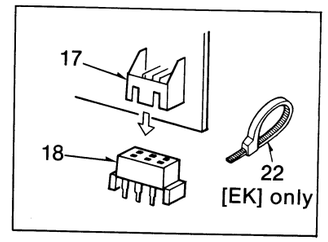


• For [EX, EB, EH, EF, EW, EG, Ei] areas.

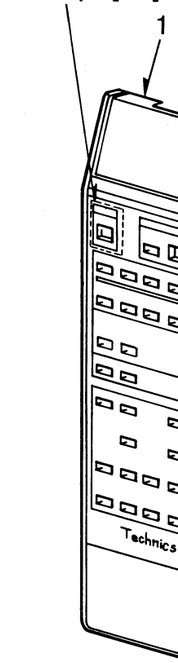


• For [EK] only.



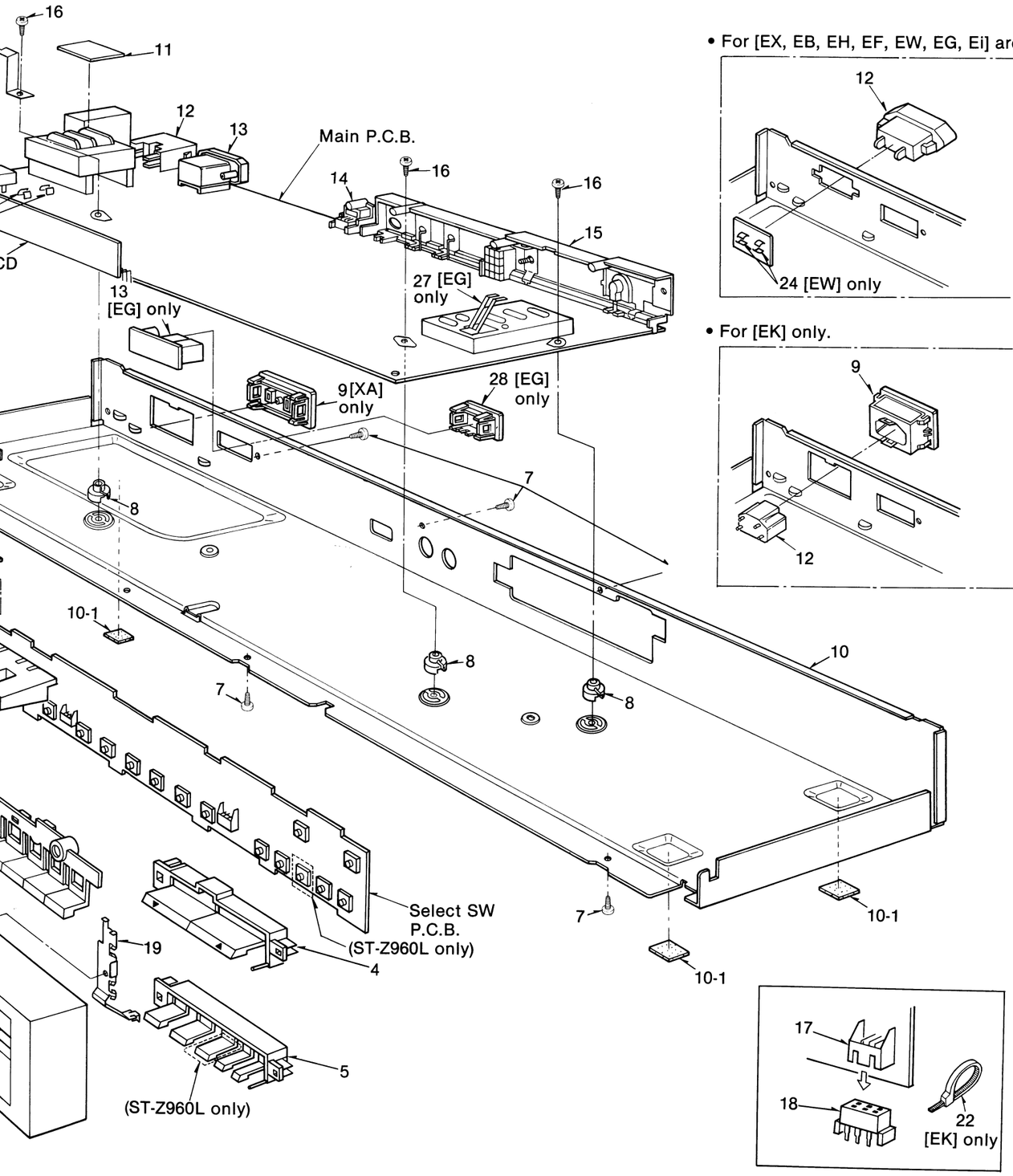


• Exploded View

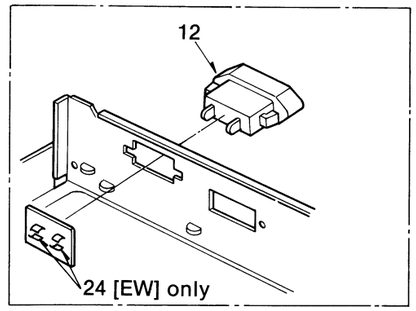


■ REPLACEM

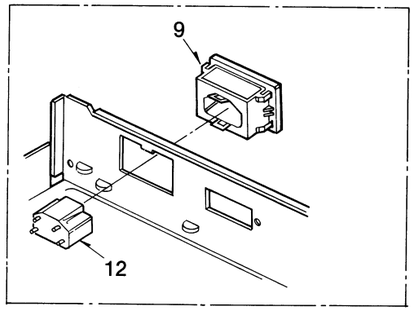
Ref. No.	Part
I.C. (REMOTE CONTROL)	
IC1001	MN6013N
TRANSISTORS (REMOTE CON	
Q1001	UN1231
DIODES (REMOTE CONTROL)	
D1001	LN66-S
D1002, D1003	MA154WK
COIL (REMOTE CONTROL)	
L1001	ELEA101J
OSCILLATOR (REMOTE CONT	
X1001	CSB420PE
RESISTORS (REMOTE CONTR	
R1001	ERDS2TJ
CAPACITORS (REMOTE CONT	



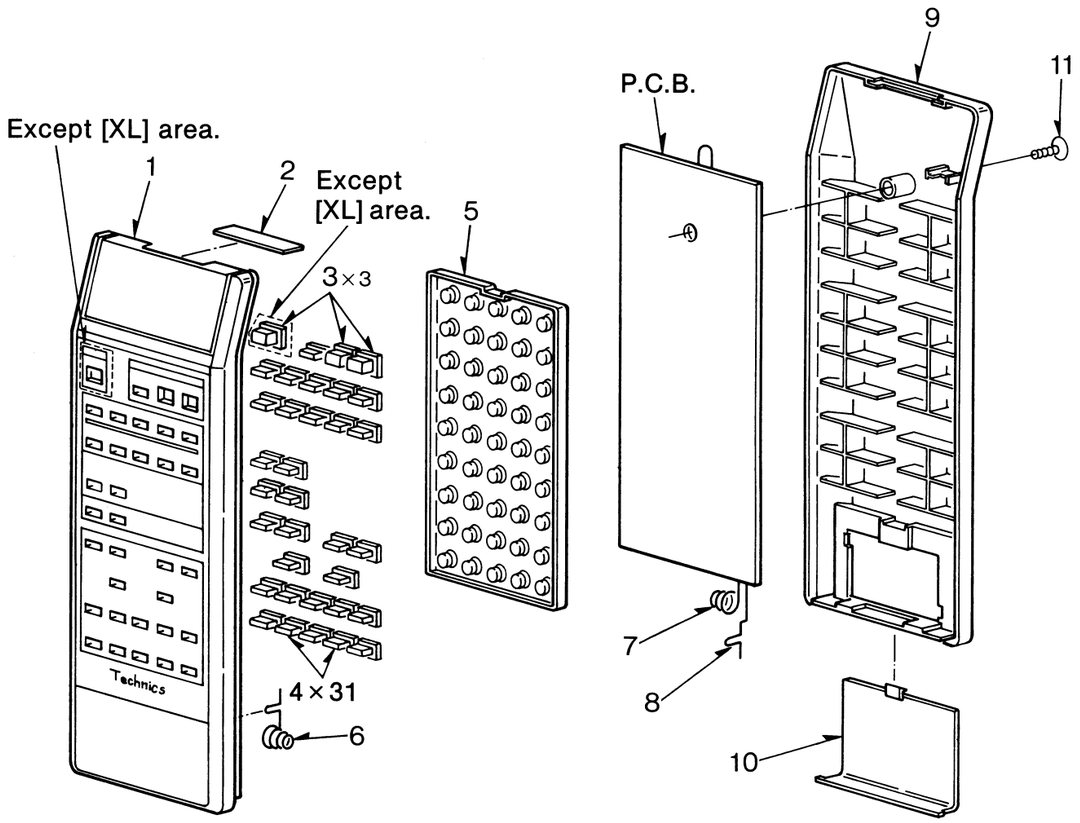
• For [EX, EB, EH, EF, EW, EG, Ei] areas.



• For [EK] only.



• **Exploded View of Remote Control Transmitter**



■ REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Code	Description
I.C. (REMOTE CONTROL)			
IC1001	MN6013N	001 061 5298 9	INTEGRATED CIRCUIT
TRANSISTORS (REMOTE CONTROL)			
Q1001	UN1231	001 030 5092 4	TRANSISTOR
DIODES (REMOTE CONTROL)			
D1001	LN66-S	001 032 3730 5	L.E.D
D1002, D1003	MA154WK	001 032 3491 1	DIODE
COIL (REMOTE CONTROL)			
L1001	ELEA101JA	001 211 2986 0	COIL
OSCILLATOR (REMOTE CONTROL)			
X1001	CSB420PB1	001 030 0013 9	420 KHZ
RESISTORS (REMOTE CONTROL)			
R1001	ERDS2TJ1R0	001 152 2419 4	CARBON, 1Ω, 1/4W
CAPACITORS (REMOTE CONTROL)			
C1001	ECKD1H121KB	001 103 1455 9	CERAMIC, 50V, 120PF
C1002	ECKD1H471KB	001 103 1551 0	CERAMIC, 470PF, 50V
C1003	ECEA0GK101	001 120 2620 3	ELECTROLYTIC CAPACITOR
REMOTE CONTROL TRANSMITTER			
1	SYWUZ960-KRE		TOP CASE
2	UR52SB327	016 842 1591 5	FILTER
3	SBCTS96RMK1	016 702 7092 6	BUTTON(A)
4	SBCTS96RMK2	016 702 7091 7	BUTTON(B)
5	UR64CT369	016 653 1199 2	RUBBER CONTACT
6	UR64TD374	003 413 1677 4	BATTERY TERMINAL
7	UR64TD373	003 413 1676 5	BATTERY TERMINAL(-)
8	UR64TD372	003 413 1675 6	BATTERY TERMINAL(+)
9	UR64CS365	016 640 0544 0	BOTTOM CASE
10	UR64EC366	016 640 0560 0	BATTERY COVER
11	XTS26+10GFZ	005 501 1132 5	TAPPING SCREW

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